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ABSTRACT

This document provides statistical data on the 1974 and 1975 Mini-Assessment of Functional Literacy, which was designed to determine the extent of functional literacy among seventeen year olds in America. Also presented are data from comparable test items from the 1971 assessment. Three standards are presented, to allow different methods of evaluating the results of the assessment, which contained exercises selected to represent the types of reading materials encountered frequently in everyday life. The desired performance level was set at 100% of all exercises, the highest level of performance expected was designated, and the minimally adequate performance level was set at successful completion of 75% of the exercises. Highlights of the assessment include three exercises in which the students' performance declined markedly (a passage on Colorado mountains, a report card, and a sign on horsepower) and four exercises in which students improved markedly (two help-wanted ads and two coupons). Three exercises in which performance was consistently low were an insurance policy statement, a book-club application, and a traffic ticket. In 1975, over 87% of the students answered 75% of the items correctly. (MKM)

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FUNCTIONAL LITERACY

BASIC READING PERFORMANCE

Summary Volume

Statistical/Documentary Report

1974 and 1975 Assessments
of 17-Year-Old Students

Prepared for
The National Right to Read Effort
400 Maryland Avenue, SW
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In Cooperation With
The National Assessment of Educational Progress
(A Project of the Education Commission of the States)
1860 Lincoln Street, Suite 700
Denver, Colorado 80295

by
Charles J. Gadway, MAFL Coordinator, Analysis and Research
H. A. Wilson, Director, Exercise Development

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NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

Roy H. Forbes
. Director

1976

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PREFACE

THE MINI-ASSESSMENT OF FUNCTIONAL LITERACY

No other medium can fully supplant the printed word as the major mode of transmitting information to the average American. Reading, therefore, must be the one skill taught in our schools most essential for our children if they are to participate even minimally in the work-a-day world. Yet, in spite of the fundamental importance of reading, there is a common belief that thousands of young Americans are dropping out of or graduating from high school lacking those basic reading skills necessary to functioning adequately in everyday life.

In order to obtain concrete evidence as to the extent of this problem, the National Right to Read Effort awarded a grant to the Education Commission of the States for the National Assessment of Educational Progress (NAEP) to conduct, in two successive years (1974 and 1975), a Mini-Assessment of Functional Literacy (MAFL). The major goal of the MAFL has been to determine the extent of functional illiteracy among all 17-year-old students in America, and, as well, among the subclassifications of 17-year-old students defined in Appendix A.

The exercises used in the MAFL were selected by a panel of reading specialists serving on the Right-to-Read staff on the dual criteria that they represent the types of reading materials encountered frequently in everyday life and that all 17-year-old students should be able to answer them correctly. The MAFL exercises are described briefly in Appendix B.

In addition, the NAEP/MAFL staff and a panel of reading specialists[1] classified each MAFL exercise according to its format and according to the reading behavior[2] it was meant to elicit. The format and behavior classifications of the MAFL exercises are defined in Appendix C.

---

[1] Dr. Alton Raygor, University of Minnesota; Dr. Carl Waller, Arizona State University, Tempe; Dr. Ruth Hartly, California State College, Sacramento; Dr. Donald Gallo, Central Connecticut State College.

[2] A reading behavior can be regarded as a manifestation of a reading skill.

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Many people and organizations have made substantial contributions to the two Mini-Assessments of Functional Literacy (MAFL). Not the least of these are the state and local school systems and the responding students themselves, without whose cooperation these studies would not have been possible. Express gratitude goes to Dr. Ruth Love, former director of the National Right to Read Effort, at whose instigation the MAFL came to be, and to Ms. Helen O'Leary, Right-to-Read Project Officer for the MAFL. Thanks also go to the other members of the Right-to-Read staff who contributed their efforts to the success of the MAFL.

The execution of the MAFL was carried out by the following organizations, consultants and National Assessment personnel. To them a sincere thank you.

- For sampling and administration: Research Triangle Institute, Research Triangle Park, N.C.
- For packaging (of exercises) and scoring: Measurement Research Center, Iowa City, Iowa.
- For consultation on the classification of the MAFL exercises; Dr. Alton Raygor, University of Minnesota; Dr. Ruth Hartley, California State College (Sacramento); Dr. Carl Wallen, Arizona State University (Tempe); and Dr. Donald Gallo, Central Connecticut State College.
- For data processing support: Ms. Patrice Gunderson and Mr. John Kalk of National Assessment.
- For statistical analysis consultation and technical review of this report: Dr. Donald Searls and Dr. Robert Larson of National Assessment.

Roy H. Forbes
Project Director

INTRODUCTION

SOME STANDARDS FOR EVALUATING THE FUNCTIONAL READING SKILLS OF 17-YEAR-OLD STUDENTS

This Statistical/Documentary Report--Summary Volume is intended for those familiar with the techniques of statistics and measurement or for those interested in the more detailed aspects of the Mini-Assessment of Functional Literacy (MAFL).[1]

Frequently, data are presented with no standard against which the data can be evaluated or interpreted. For the MAFL, we have three standards, each allowing the evaluation of the functional reading achievements of 17-year-old students in a somewhat different light.

When a panel of reading specialists serving on the Right-to-Read staff selected the exercises to be used in the MAFL, they did so with the criterion that all 17-year-old students should be able to correctly answer all the MAFL exercises. This, then, became the desired performance level--the standard we would like all 17-year-old students to achieve. Any reported raw percentage (P-value for an exercise or mean P-value for a set of exercises) representing 17-year-old student functional reading achievement less than 100 percent falls short of this standard.

The highest expected level of performance is the best performance one might reasonably expect based on the performance of a group of known superior readers as determined by their having scored above the 90th percentile on a standardized reading test used for college entrance purposes. The raw P-values are adjusted by conversion to a percentage of the superior reader performance. Any adjusted percentage less than 100 percent means the group of 17-year-old students fell short of this standard.

The minimally adequate performance level is the lowest performance a 17-year-old student can give and still be considered functionally literate. Right to Read has determined that any 17-year-old student must be able to correctly answer at least 75 percent of the MAFL exercises if he is to be considered functionally literate.

Chapter 1 gives an overview of the MAFL; Chapters 2, 3, and 4, respectively, tabulate the MAFL results relative to the three standards discussed above; and Chapter 5 highlights several exercises for which the results are unique.

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[1]Those who are interested only in the more general aspects of the MAFL are referred to the Brief Summary and Highlights. An optional companion to either report, Handbook of the Mini-Assessment of Functional Literacy, is also available.

CHAPTER 1

RESULTS OF THE MINI-ASSESSMENT OF FUNCTIONAL LITERACY IN BRIEF

The general trends of the results for the Mini-Assessment of Functional Literacy (MAFL) are given here for all 17-year-old students (national) and the subclassifications[1] of these students by region (Southeast, West, Central, Northeast); sex (male, female); race (black, white); highest level of education attained by at least one parent (no high school, some high school, graduated from high school, post-high school);[2] and size/type of community (low-metro, extreme rural, small place, medium city, main big city, urban fringe, high metro).[3] The results are given in greater detail in the following chapters.

The Truncated MAFL[4]

From 1971 to 1974, 17-year-old students at the national level and those in the Central region; both sexes; both races; all but the post-high-school group in the parental-education classifications; and in the low-metro, rural and small-places size/type of community (STOC) classifications improved significantly[5] in functional reading. By 1974, two of these groups, some high school and rural, had declined enough that their net change from 1971 was statistically indeterminant. Four groups whose improvements over the first three years had been indeterminant (the Southeast and West regions, post-high-school parental-education group and urban-fringe STOC group) improved enough additionally by 1975 that their total improvement was significant. Thus, by 1975, significant improvement had been made by 14 of the 20 groups for which we report results.

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[1]All classifications of 17-year-old students are defined briefly in Appendix A.
[2]In the classification of 17-year-old students by the level of their parents' education, "high school" refers to grades 9-12 (see definitions in Appendix A).
[3]Low metro and high metro refer, respectively, to schools whose students have parents predominantly of low- and high-socioeconomic status (see definitions in Appendix A).
[4]Of the 86 exercises that comprise the complete MAFL administered in 1974 and 1975, 64 had been used in National Assessment's 1971 full reading assessment of 17-year-old students. This subset of exercises, called the truncated MAFL, provides data on the functional reading levels of 17-year-old students at three time points: 1971, 1974, and 1975.
[5]There is no greater probability than 0.050 that the improvement was due to chance.

The Complete MAFL

The overall functional-reading achievements of no group of 17-year-old students either improved or declined significantly from 1974 to 1975 on the complete set of 86 MAFL exercises. Several groups, however, did show significant changes in functional-reading achievements on certain format and behavior classifications for the exercises.[6]

- Improvement in their ability to read passages was registered by 17-year-old students at the national level and by those in the West region, males, whites and those in the graduated-from-high-school and post-high-school parental-education groups. Improvement was likewise registered in their ability to understand word meanings by 17-year-old students at the national level and by those in the Southeast and West regions, both sexes, both races, those in the graduated-from-high-school and post-high-school parental-education groups and those in the small-places and high-metro STOC groups. Seventeen-year-old students in the West improved on gleaning significant facts.

- The high-metro group declined in ability to read charts, maps, and graphs. A loss in their ability to read forms was registered by 17-year-old students in the main-big-city STOC group, the post-high-school parental-education group and females. Rural 17-year-old students declined in ability to read reference materials. Rural 17-year-old students and those in the some-high-school parental-education group declined in their ability to comprehend the main ideas and organization of what they read. The high-metro STOC group declined in ability to draw inferences.

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[6]The rationale for the format and behavior classifications of the MAFL exercises is given in the Preface. They are defined briefly in Appendix C.

CHAPTER 2

FUNCTIONAL READING SKILLS RELATIVE TO THE DESIRED PERFORMANCE LEVEL

Ordinarily, when we report the raw percentages of students who answer exercises correctly (raw P-values), we have not been able to place an evaluation on them since we have had no standard upon which to base an evaluation. When the reading specialists serving on the staff on the National Right to Read Effort selected the exercises to be used for the Mini-Assessment of Functional Literacy (MAFL), one of the selection criteria was that it would be desirable that every 17-year-old student be able to answer every exercise correctly. Therefore, the first standard against which we evaluate the functional reading skills of the various groups of 17-year-old students[1] is the desired performance level (DPL) of 100 percent.

The Truncated MAFL[2]

In Exhibit 2-1, we report for each group of 17-year-old students the mean ($\bar{P}$) and standard deviation (sp) of the raw P-values of the 64 exercises included in the truncated MAFL for 1971, 1974, and 1975. We also report each group's change in mean raw P-values ($\Delta\bar{P}$) from 1971 to 1974, 1974 to 1975, and 1971 to 1975; the standard error of the change ($SE\Delta\bar{P}$); the critical ratio (C.R.); and the probability (p) that the change was due to sampling error.[3]

Exhibit 2-2 graphically shows the mean P-values for each group in 1971, 1974 and 1975. A plus sign (+) at the top of a group's 1974 or 1975 bar indicates that the mean P-value for that year represents a significant improvement over the group's 1971 level.

The Complete MAFL

In Exhibit 2-3, we report for each group of 17-year-old students the mean ($\bar{P}$) and standard deviation (sp) of the raw P-values of the 86 exercises in the complete MAFL for 1974 and 1975. We also report each group's change in mean raw P-values ($\Delta\bar{P}$) from 1974 to 1975, the standard error of the change ($SE\Delta P$)

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[1]All classifications of 17-year-old students are defined in Appendix A.
[2]Of the 86 exercises that comprise the complete MAFL, administered in 1974 and 1975, 64 had been used in National Assessment's 1971 full reading assessment of 17-year-old students. This subset of exercises, called the truncated MAFL, provides data on the functional reading skills of 17-year-old students at three time points.
[3]Changes for which the probability is no greater than 0.050 (significant) are indicated by an asterisk (*).

the critical ratio (C.R.), and the probability (p) that the change was due to sampling error. Also in Exhibit 2-3, we report this information for each group on each of the format and behavior classifications[4] of the MAFL exercises.

In all cases, any difference between the mean raw P-value reported for a group and 100 percent is the group's shortfall from the DPL standard.

NOTICE: All data with the exception of the probabilities in the tabular exhibits are given to one decimal place. The arithmetic operations to arrive at the changes in mean P-values ($\Delta\bar{P}$) and critical ratios (C.R.) were done at higher levels of precision and then rounded for reporting; therefore, the reported changes and critical ratios may reflect rounding error.

[4]The rationale of the format and behavior classifications of the MAFL exercises is given in the Preface. They are defined in Appendix C. Note that these subclassifications are not used in the truncated MAFL due to small numbers of exercises.

EXHIBIT 2-1. Means and Standard Deviations of RAW P-Values (Desired Performance Level Standard) for the TRUNCATED MAFL for 1971, 1974, and 1975; Changes in Mean P-Values from 1971 to 1974, 1974 to 1975, and 1971 to 1975; Standard Errors of the Changes; Critical Ratios; and Probabilities that the Changes Are Due to Random Error.

VARIABLE	1971		1974		1975		1971-1974				1974-1975				1971-1975			
Group	$\bar{P}$	sp	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p
National	83.7	14.7	85.6	14.5	85.9	14.6	+1.9*	0.5	3.6	<0.001	+0.3	0.5	0.7	0.490	+2.2*	0.5	4.6	<0.001
REGION																		
Southeast	79.4	15.9	82.1	16.1	82.7	15.7	+2.7	1.7	1.6	0.116	+0.6	1.6	0.4	0.704	+3.3*	1.2	2.8	0.005
West	83.1	15.5	84.5	14.8	86.1	14.8	+1.4	1.0	1.5	0.142	+1.5	0.8	1.9	0.056	+2.9*	0.9	3.4	0.001
Central	85.8	13.8	87.8	13.9	87.6	14.2	+2.0*	0.7	2.8	0.005	-0.2	0.7	0.3	0.757	+1.8*	0.8	2.3	0.020
Northeast	85.0	14.7	86.3	14.5	86.4	14.3	+1.3	0.9	1.5	0.139	+0.1	1.0	0.1	0.904	+1.4	1.0	1.4	0.159
SEX																		
Male	82.2	14.6	84.5	14.3	85.2	14.4	+2.3*	0.6	3.6	<0.001	+0.7	0.6	1.1	0.267	+3.0*	0.6	5.1	<0.001
Female	85.1	15.1	86.6	15.0	86.5	15.0	+1.5*	0.6	2.6	0.009	-0.1	0.5	0.2	0.881	+1.4*	0.6	2.6	0.010
RACE																		
Black	69.4	18.6	72.7	19.1	74.1	19.5	+3.4*	1.6	2.2	0.026	+1.4	2.0	0.7	0.497	+4.7*	1.9	2.5	0.010
White	85.7	14.4	87.6	14.0	87.8	14.2	+2.0*	0.3	6.5	<0.001	+0.2	0.4	0.4	0.653	+2.1*	0.4	5.1	<0.001
PARENTAL EDUCATION																		
No High School	74.6	16.8	79.0	16.8	78.6	17.8	+4.4*	1.8	2.6	0.011	-0.4	1.8	0.2	0.818	+4.0*	1.5	2.8	0.006
Some High School	79.1	17.0	81.8	15.7	80.5	16.6	+2.7*	1.1	2.4	0.018	-1.3	1.3	1.0	0.327	+1.4	1.1	1.2	0.222
Grad. High School	83.8	15.3	85.1	14.8	85.8	15.1	+1.3*	0.6	2.0	0.049	+0.8	0.6	1.2	0.219	+2.0*	0.6	3.5	0.001
Post High School	87.8	13.8	88.6	13.8	89.0	13.6	+0.8	0.4	1.8	0.077	+0.3	0.4	0.8	0.418	+1.1*	0.4	2.6	0.011
SIZE/TYPE OF COMM.																		
Low Metro	76.0	17.0	79.4	17.1	80.8	16.6	+3.4*	1.7	2.0	0.048	+1.5	1.8	0.8	0.401	+4.9*	1.9	2.6	0.009
Extreme Rural	81.5	15.5	85.4	14.8	83.3	16.1	+3.9*	1.8	2.1	0.036	-2.0	1.9	1.1	0.285	+1.8	1.6	1.1	0.263
Small Place	83.2	14.9	85.5	14.6	86.1	14.7	+2.3*	0.9	2.6	0.010	+0.6	0.8	0.7	0.478	+2.9*	0.8	3.7	<0.001
Medium City	84.4	14.6	85.7	15.2	85.3	14.2	+1.3	1.2	1.1	0.258	-0.5	1.3	0.4	0.711	+0.9	1.2	0.7	0.484
Main Big City	84.0	15.0	86.0	13.6	85.4	15.3	+2.0	1.8	1.1	0.271	-0.7	2.2	0.3	0.764	+1.3	1.9	0.7	0.490
Urban Fringe	84.8	14.8	87.1	14.6	88.2	14.0	+2.3	1.2	1.8	0.070	+1.1	1.2	1.0	0.322	+3.4*	1.1	3.0	0.002
High Metro	88.8	13.5	90.3	12.9	89.0	14.6	+1.5	1.1	1.3	0.180	-1.3	1.4	0.9	0.347	+0.2	1.2	0.2	0.857

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 2-2. Mean P-Values -- Desired Performance Level
(Average of the Percentages of 17-Year-Old Students Answering the Individual Exercises Correctly)

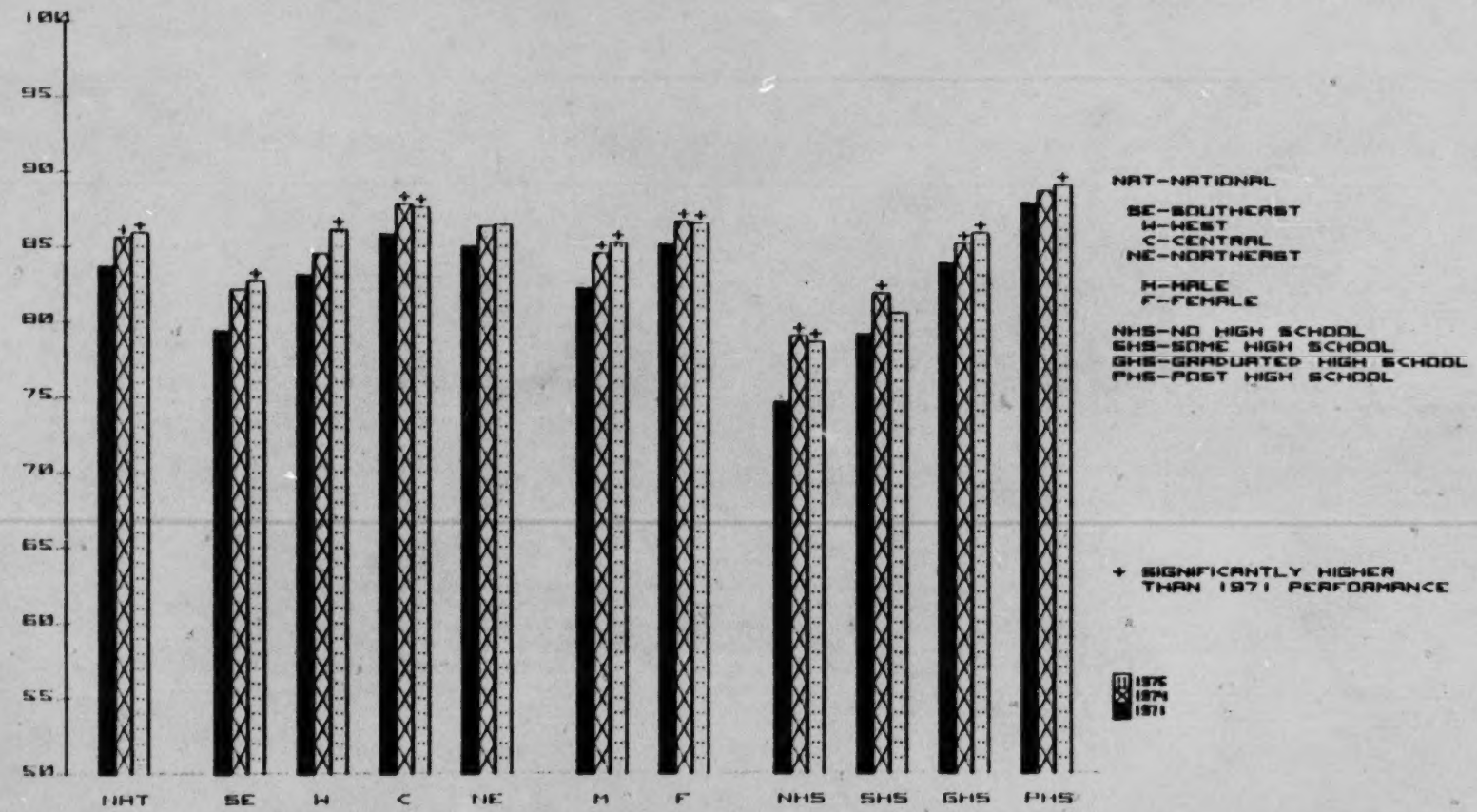

EXHIBIT 2-2 (Cont.). Mean P-Values -- Desired Performance Level
(Average of the Percentages of 17-Year-Old Students Answering the
Individual Exercises Correctly)

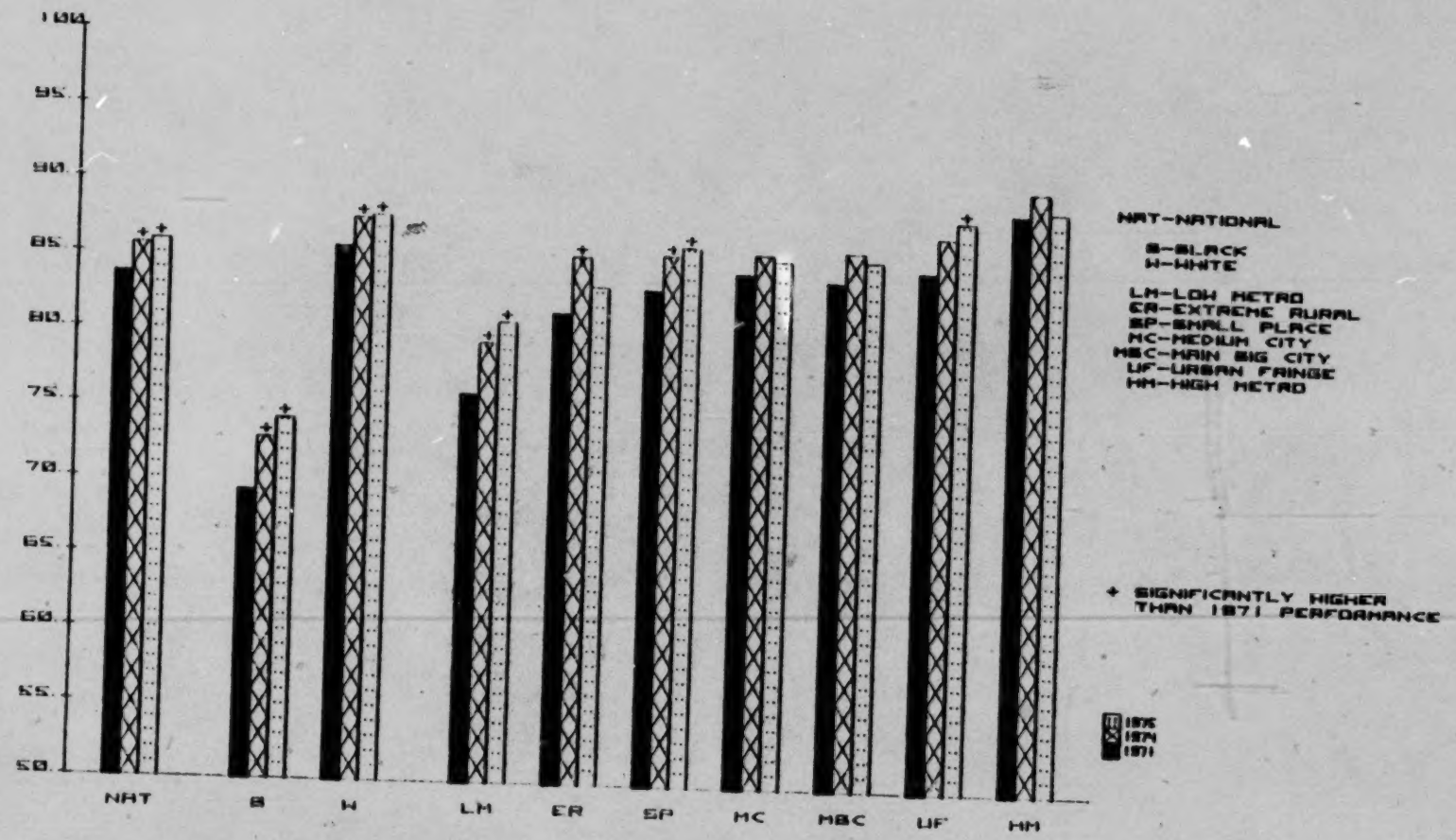

EXHIBIT 2-3(a). Means and Standard Deviations of RAW P-Values (Desired Performance Level Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes are Due to Random Error

VARIABLE Group	All Exercises (N=86)								Passages (N=38)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R	p
National	87.5	13.8	87.6	13.8	+0.2	0.4	0.4	0.697	87.1	13.4	88.2	13.3	+1.1*	0.4	2.6	0.008
REGION																
Southeast	84.7	15.4	84.8	15.1	+0.1	1.2	0.1	0.920	84.5	14.6	85.9	14.3	+1.4	1.2	1.1	0.263
West	86.7	14.0	87.8	13.9	+1.1	0.7	1.6	0.112	86.3	13.6	88.5	13.0	+2.2*	0.6	3.4	0.001
Central	89.4	13.1	89.2	13.4	-0.2	0.6	0.4	0.711	89.1	12.9	89.5	13.5	+0.4	0.5	0.8	0.435
Northeast	87.9	13.6	88.1	13.4	+0.2	0.9	0.2	0.865	87.5	13.6	88.4	12.7	+0.9	0.9	1.1	0.285
SEX																
Male	86.5	13.7	86.9	13.7	+0.4	0.5	0.7	0.509	85.9	13.8	87.1	13.8	+1.2*	0.5	2.3	0.020
Female	88.4	14.0	88.3	14.0	-0.1	0.4	0.2	0.857	88.3	13.1	89.1	13.0	+0.8	0.4	1.8	0.072
RACE																
Black	76.3	19.0	76.9	19.2	+0.5	1.6	0.3	0.741	76.1	18.2	78.9	17.7	+2.8	1.7	1.7	0.093
White	89.3	13.1	89.3	13.2	0.0	0.4	0.1	0.928	89.0	12.7	89.7	12.8	+0.7	0.4	2.0	0.049
PARENTAL EDUCATION																
No High School	82.1	16.4	81.3	17.4	-0.8	1.4	0.6	0.569	82.0	16.2	83.1	15.0	+1.1	1.4	0.8	0.430
Some High School	84.5	15.2	83.1	16.1	-1.4	1.1	1.3	0.211	84.2	14.4	84.3	15.4	+0.1	1.2	0.1	0.936
Grad. High School	87.0	14.1	87.5	14.2	+0.5	0.5	1.0	0.317	86.9	13.8	88.1	13.8	+1.2*	0.6	2.1	0.037
Post High School	90.1	12.8	90.3	12.7	+0.2	0.4	0.6	0.555	89.6	12.6	90.6	12.5	+1.0*	0.4	2.2	0.028
SIZE/TYPE OF COMM.																
Low Metro	81.9	16.5	83.0	15.9	+1.1	1.5	0.7	0.465	82.6	16.0	84.4	14.9	+1.8	1.3	1.4	0.162
Extreme Rural	87.5	14.0	85.3	15.2	-2.2	1.5	1.5	0.142	86.6	13.7	86.5	14.1	-0.1	1.6	0.1	0.944
Small Place	87.4	13.8	87.8	13.9	+0.4	0.7	0.5	0.610	86.8	13.9	88.2	13.6	+1.4	0.8	1.8	0.067
Medium City	87.7	14.3	87.2	13.6	-0.5	1.0	0.5	0.617	87.3	13.6	87.8	12.8	+0.6	1.0	0.6	0.582
Main Big City	87.9	13.1	87.1	14.4	-0.8	1.8	0.5	0.308	87.6	13.2	88.2	13.4	+0.7	1.5	0.4	0.653
Urban Fringe	88.7	13.7	89.9	12.9	+1.2	1.0	1.2	0.238	88.6	13.1	90.0	12.8	+1.4	1.0	1.4	0.162
High Metro	91.8	11.9	90.4	13.5	-1.4	1.1	1.3	0.194	91.4	11.1	90.2	13.6	-1.2	1.2	1.0	0.303

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 2-7(b). Means and Standard Deviations of RAW P-Values (Desired Performance Level Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes are Due to Random Error

VARIABLE Group	Graphic Materials--Drawings, Pictures, Signs...(N=11)								Graphic Materials--Charts, Maps, Graphs (N=11)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SEΔP	C.R.	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SEΔP	C.R.	p
National	92.6	9.1	92.1	10.1	-0.5	0.5	1.0	0.337	91.1	7.2	90.4	7.5	-0.7	0.5	1.4	0.159
REGION																
Southeast	90.5	12.4	90.3	12.4	-0.1	1.4	0.1	0.928	88.5	8.5	86.3	10.0	-2.1	1.2	1.7	0.087
West	92.3	9.5	92.0	10.4	-0.3	0.9	0.3	0.741	90.2	7.4	90.8	7.6	+0.6	1.0	0.6	0.529
Central	94.5	6.9	93.3	8.9	-1.2	0.8	1.4	0.171	92.5	6.9	92.4	6.0	-0.1	0.6	0.1	0.912
Northeast	92.6	9.0	92.4	9.6	-0.2	1.2	0.2	0.857	92.4	6.6	91.2	7.2	-1.2	1.1	1.1	0.254
SEX																
Male	92.0	9.4	91.8	10.0	-0.2	0.7	0.3	0.741	90.5	7.4	89.5	8.3	-1.0	0.7	1.4	0.156
Female	93.2	9.1	92.5	10.6	-0.8	0.6	1.3	0.190	91.6	7.2	91.2	7.1	-0.4	0.6	0.8	0.430
RACE																
Black	83.8	18.9	82.3	21.6	-1.5	2.1	0.7	0.472	80.7	12.5	76.5	15.6	-4.1	2.3	1.8	0.069
White	94.4	7.1	93.5	8.6	-0.9	0.5	1.8	0.064	93.0	6.2	92.5	6.6	-0.5	0.4	1.3	0.208
PARENTAL EDUCATION																
No High School	88.9	13.8	87.6	16.4	-1.3	1.7	0.8	0.441	84.9	9.7	83.6	11.1	-1.3	1.8	0.8	0.453
Some High School	90.4	12.2	88.0	14.8	-2.4	1.2	1.9	0.056	89.3	9.0	87.0	9.0	-2.2	1.6	1.4	0.147
Grad. High School	92.6	9.6	92.1	10.2	-0.5	0.7	0.6	0.522	90.4	7.8	90.0	8.0	-0.4	0.7	0.5	0.610
Post High School	94.7	6.7	94.3	7.6	-0.4	0.5	0.8	0.447	93.8	5.7	93.3	6.0	-0.5	0.5	1.0	0.317
SIZE/TYPE OF COMM.																
Low Metro	86.9	15.8	87.2	15.3	+0.3	2.2	0.1	0.904	85.8	9.0	84.2	12.3	-1.7	2.6	0.6	0.516
Extreme Rural	93.5	8.3	90.1	13.5	-3.4	1.8	1.9	0.063	91.3	7.8	88.6	8.2	-2.7	2.0	1.3	0.180
Small Place	92.7	9.4	92.6	9.8	-0.1	1.0	0.1	0.889	90.9	7.3	90.8	7.6	-0.1	0.9	0.1	0.897
Medium City	93.3	7.8	92.0	9.0	-1.3	1.2	1.2	0.246	91.6	7.5	90.0	7.4	-1.6	1.4	1.2	0.234
Main Big City	93.4	8.5	91.1	11.7	-2.3	2.9	0.8	0.424	90.7	7.8	89.8	9.1	-0.9	2.7	0.3	0.734
Urban Fringe	93.5	8.6	93.3	9.0	-0.2	1.3	0.2	0.865	92.3	6.1	92.3	6.5	0.0	1.6	0.0	0.992
High Metro	96.1	4.6	95.2	6.5	-0.9	0.9	1.0	0.294	95.6	2.5	93.3	5.6	-2.3*	0.9	2.5	0.011

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 2-3(c). Means and Standard Deviations of RAW P-Values (Desired Performance Level Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes are Due to Random Error

VARIABLE Group	Graphic Materials--Forms (N=10)								Reference Materials (N=14)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SEAP	C.R	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SEAP	C.R.	p
National	84.3	23.2	83.3	23.2	-1.0	0.6	1.6	0.114	83.0	10.4	82.8	9.9	-0.2	0.8	0.2	0.834
REGION																
Southeast	81.5	25.0	79.7	24.0	-1.8	1.7	1.1	0.280	79.4	12.3	79.4	11.6	0.0	1.8	0.0	0.984
West	83.0	23.6	84.1	24.0	+1.1	1.3	0.8	0.401	82.8	10.5	82.6	10.2	-0.2	1.4	0.1	0.897
Central	86.5	22.5	85.3	22.4	-1.2	1.0	1.2	0.230	85.0	9.9	84.5	9.1	-0.5	1.4	0.3	0.734
Northeast	84.9	22.6	83.3	23.0	-1.5	1.3	1.2	0.234	83.4	9.9	84.0	9.8	+0.6	1.8	0.4	0.726
SEX																
Male	83.7	21.1	83.7	21.3	0.0	0.8	0.0	0.968	82.0	11.1	81.4	10.7	-0.6	1.1	0.6	0.575
Female	85.0	25.3	83.0	24.9	-2.0*	0.7	3.0	0.003	83.9	9.9	83.7	9.5	-0.2	0.9	0.2	0.826
RACE																
Black	73.6	25.7	71.9	26.3	-1.7	2.1	0.8	0.412	68.5	16.1	70.0	13.9	+1.5	2.7	0.6	0.569
White	86.0	22.7	85.1	23.1	-0.9	0.5	1.6	0.099	85.0	9.8	85.1	9.5	+0.1	0.8	0.1	0.944
PARENTAL EDUCATION																
No High School	74.9	23.9	76.5	26.9	+1.6	2.2	0.7	0.484	75.4	13.3	72.1	15.6	-3.3	3.1	1.1	0.289
Some High School	80.5	23.9	77.6	24.6	-2.8	1.7	1.7	0.091	78.8	12.0	75.9	11.8	-2.9	2.1	1.4	0.174
Grad. High School	83.3	23.1	83.6	23.8	+0.3	0.8	0.4	0.719	82.5	10.8	82.7	10.0	+0.2	1.1	0.2	0.834
Post High School	87.2	23.0	86.0	22.3	-1.2*	0.5	2.2	0.027	86.5	9.3	86.8	8.8	+0.3	0.9	0.4	0.719
SIZE/TYPE OF COMM.																
Low Metro	78.4	24.7	78.6	23.4	+0.2	2.2	0.1	0.912	75.0	12.9	77.5	12.7	+2.5	2.7	0.9	0.352
Extreme Rural	83.2	24.0	82.0	24.5	-1.2	1.9	0.6	0.529	84.7	10.7	77.6	11.5	-7.1*	3.1	2.3	0.023
Small Place	85.1	22.7	84.1	23.0	-1.0	0.9	1.2	0.238	82.9	9.6	83.4	10.7	+0.5	1.4	0.4	0.719
Medium City	83.6	24.5	82.0	22.7	-1.6	1.6	1.0	0.312	84.0	12.3	82.5	10.4	-1.5	1.7	0.8	0.395
Main Big City	86.3	20.5	80.6	25.0	-5.6*	2.7	2.1	0.036	82.8	10.1	82.7	8.6	-0.1	2.9	0.0	0.976
Urban Fringe	85.2	23.9	86.0	23.2	+0.8	1.4	0.6	0.562	84.0	10.8	87.0	7.6	+3.0	1.8	1.6	0.107
High Metro	87.6	23.0	85.6	24.0	-2.0	1.5	1.3	0.190	88.6	7.9	87.3	9.7	-1.3	2.3	0.6	0.582

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 2-3(d). Means and Standard Deviations of RAW P-Values (Desired Performance Level Standard) for the COMPLETE MAVL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes are Due to Random Error

VARIABLE Group	Understand Word Meanings (N=12)								Glean Significant Facts (N=47)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SEΔP	C.R.	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SEΔP	C.R.	p
National	96.5	5.2	97.4	1.7	+0.9*	0.2	3.7	<0.001	87.7	14.8	87.9	15.0	+0.2	0.4	0.5	0.631
REGION																
Southeast	94.8	8.9	96.2	2.9	+1.4*	0.7	2.1	0.039	85.0	16.0	84.9	16.0	-0.1	1.2	0.0	0.976
West	95.6	7.5	97.9	1.3	+2.3*	0.5	4.4	<0.001	86.8	15.1	88.3	15.2	+1.5*	0.8	2.0	0.050
Central	97.9	3.2	98.2	1.4	+0.3	0.4	0.8	0.082	89.6	14.4	89.4	14.7	-0.2	0.6	0.4	0.719
Northeast	96.8	3.2	97.2	2.0	+0.4	0.5	0.8	0.401	88.3	14.6	88.4	14.8	+0.1	0.8	0.1	0.944
SEX																
Male	95.9	5.5	96.8	2.0	+0.9*	0.4	2.3	0.020	86.8	14.4	87.4	14.7	+0.6	0.5	1.2	0.242
Female	97.1	4.9	98.0	1.5	+0.9*	0.3	3.0	0.003	88.6	15.4	88.4	15.4	-0.2	0.5	0.5	0.589
RACE																
Black	91.8	10.8	94.0	4.4	+2.2*	1.1	2.0	0.043	76.8	18.1	77.5	18.8	+0.7	1.6	0.5	0.638
White	97.2	4.5	98.0	1.4	+0.7*	0.3	2.8	0.004	89.5	14.5	89.6	14.8	+0.1	0.4	0.3	0.757
PARENTAL EDUCATION																
No High School	94.1	9.5	95.1	4.2	+1.0	1.3	0.7	0.459	82.5	16.1	81.6	18.2	-0.9	1.5	0.6	0.529
Some High School	95.6	8.2	95.8	3.4	+0.2	1.0	0.2	0.803	84.7	15.4	83.8	16.9	-0.9	1.2	0.8	0.424
Grad. High School	96.6	5.4	97.5	1.4	+0.9*	0.3	2.9	0.003	87.3	15.0	88.0	15.4	+0.7	0.5	1.4	0.177
Post High School	97.4	3.8	98.4	1.2	+1.0*	0.3	3.2	0.001	90.3	14.4	90.4	14.3	+0.1	0.4	0.3	0.734
SIZE/TYPE OF COMM.																
Low Metro	95.2	5.2	95.7	3.1	+0.5	0.8	0.7	0.478	82.8	16.1	83.8	16.1	+1.0	1.4	0.7	0.490
Extreme Rural	96.1	9.0	96.9	2.6	+0.8	1.2	0.7	0.490	87.3	15.5	86.1	16.0	-1.2	1.4	0.8	0.418
Small Place	96.3	6.3	97.4	1.8	+1.1*	0.4	2.4	0.016	87.7	14.8	88.3	14.9	+0.6	0.7	0.9	0.384
Medium City	96.3	4.7	96.9	2.2	+0.6	0.8	0.8	0.424	87.6	16.0	87.2	15.0	-0.4	1.0	0.4	0.674
Main Big City	97.4	4.4	97.7	1.8	+0.4	0.8	0.5	0.638	88.2	13.7	87.3	15.9	-0.9	1.8	0.5	0.610
Urban Fringe	97.3	3.3	98.4	1.2	+1.1	0.6	1.9	0.054	89.2	14.6	89.7	14.6	+0.5	1.0	0.5	0.624
High Metro	97.6	4.0	98.7	1.5	+1.1*	0.5	2.1	0.038	91.6	14.0	90.4	15.4	-1.2	1.2	1.0	0.332

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 2-3(e). Means and Standard Deviations of RAW P-Values (Desired Performance Level Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes are Due to Random Error

VARIABLE Group	Comprehend Main Ideas and Organization (N=8)								Draw Inferences (N=16)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	$SE_{\Delta\bar{P}}$	C.R.	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	$SE_{\Delta\bar{P}}$	C.R.	p
National	91.9	9.7	91.2	9.9	-0.7	0.5	1.4	0.159	77.2	10.2	77.5	9.1	+0.3	0.8	0.3	0.741
REGION																
Southeast	90.4	11.8	90.3	10.0	-0.1	1.0	0.1	0.928	72.9	10.9	73.2	11.0	+0.3	2.1	0.1	0.897
West	91.4	9.4	90.5	10.8	-0.8	0.9	0.9	0.363	77.0	10.4	77.3	8.8	+0.3	1.3	0.3	0.795
Central	93.6	7.9	92.7	9.1	-0.8	0.6	1.5	0.144	79.5	9.9	79.7	9.9	+0.2	1.3	0.2	0.857
Northeast	91.3	10.8	90.8	10.1	-0.5	1.2	0.4	0.674	78.0	10.5	78.7	8.6	+0.7	1.6	0.4	0.660
SEX																
Male	90.3	11.7	89.6	11.3	-0.7	0.7	1.0	0.312	75.8	10.3	75.8	9.4	-0.1	1.0	0.1	0.952
Female	93.4	7.6	92.6	8.8	-0.8	0.5	1.4	0.147	78.5	10.4	79.0	9.6	+0.5	0.9	0.5	0.589
RACE																
Black	84.1	15.6	82.5	14.6	-1.6	1.6	1.0	0.312	58.9	12.9	59.5	11.8	+0.5	2.4	0.2	0.826
White	93.1	9.0	92.7	8.9	-0.4	0.4	0.8	0.401	80.4	9.7	80.3	9.4	-0.1	0.7	0.2	0.881
PARENTAL EDUCATION																
No High School	87.8	13.6	87.4	15.2	-0.5	1.9	0.2	0.810	68.4	12.8	67.2	9.4	-1.2	2.4	0.5	0.596
Some High School	90.1	12.2	86.3	13.9	-3.8*	1.5	2.5	0.011	72.1	10.5	69.9	9.6	-2.2	2.1	1.1	0.285
Grad. High School	91.6	10.1	91.0	10.2	-0.6	0.8	0.8	0.401	76.4	10.5	77.0	9.8	+0.6	1.0	0.6	0.582
Post High School	93.7	8.1	93.6	7.9	-0.1	0.5	0.2	0.826	81.5	9.9	82.0	9.5	+0.5	0.9	0.6	0.562
SIZE/TYPE OF COMM.																
Low Metro	86.2	15.2	86.5	13.3	+0.3	1.9	0.1	0.889	67.1	11.6	69.6	11.7	+2.5	2.6	1.0	0.332
Extreme Rural	93.0	7.7	88.7	11.0	-4.3*	1.3	3.4	0.001	78.4	4.7	73.1	10.3	-5.4	2.9	1.9	0.061
Small Place	91.8	9.4	91.8	9.9	0.0	0.7	0.1	0.944	77.1	10.3	76.7	10.2	-0.4	1.4	0.3	0.757
Medium City	92.7	9.6	91.9	8.6	-0.8	0.9	0.9	0.358	78.1	10.4	77.6	8.6	-0.5	1.9	0.2	0.810
Main Big City	92.3	9.5	88.5	13.3	-3.8	2.2	1.8	0.080	77.2	10.1	77.5	7.9	+0.3	3.1	0.1	0.912
Urban Fringe	92.1	10.4	92.6	8.6	+0.5	1.4	0.4	0.682	78.6	11.3	82.4	9.4	+3.8	2.0	1.9	0.095
High Metro	95.2	7.5	94.1	8.2	-1.1	1.3	0.8	0.418	85.7	8.5	81.7	9.7	-4.0*	1.8	2.3	0.031

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 2-3(f). Means and Standard Deviations of RAW P-Values (Desired Performance Level Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes are Due to Random Error

VARIABLE Group	Read Critically (N=3)							
	1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SEΔP	C.R.	p
National	90.6	11.2	88.6	13.9	-2.0*	0.8	2.6	0.010
REGION								
Southeast	85.1	14.1	85.5	16.3	+0.4	2.0	0.2	0.841
West	90.2	10.5	87.3	13.1	-0.9	1.5	0.6	0.542
Central	93.1	8.7	89.9	13.0	-3.2*	1.2	2.6	0.009
Northeast	89.9	12.5	89.2	13.6	-0.7	1.6	0.5	0.638
SEX								
Male	91.9	8.6	90.7	10.9	-1.2	1.0	1.3	0.208
Female	89.5	13.5	86.9	16.4	-2.6*	1.0	2.4	0.014
RACE								
Black	80.0	22.6	76.0	27.1	-4.0	3.8	1.1	0.289
White	92.7	8.9	90.4	12.2	-2.3*	0.7	3.0	0.002
PARENTAL EDUCATION								
No High School	85.5	14.9	81.1	21.8	-4.4	3.0	1.5	0.139
Some High School	86.4	15.3	82.1	18.5	-4.3	2.4	1.8	0.077
Grad. High School	89.8	12.6	88.5	14.5	-1.3	1.4	0.9	0.384
Post High School	93.8	7.8	92.0	10.8	-1.9*	0.8	2.3	0.021
SIZE/TYPE OF COMM.								
Low Metro	83.3	19.7	82.6	18.7	-0.6	4.0	0.2	0.873
Extreme Rural	91.7	8.8	84.0	18.8	-7.7*	3.5	2.2	0.029
Small Place	90.6	11.8	89.8	13.0	-0.8	1.5	0.5	0.610
Medium City	92.8	7.4	87.6	14.8	-5.2*	2.0	2.6	0.038
Main Big City	91.2	10.5	88.1	14.7	-3.0	3.7	0.8	0.407
Urban Fringe	90.6	12.2	90.3	12.4	-0.3	2.6	0.1	0.904
High Metro	94.8	5.9	92.8	10.1	-2.0	1.8	1.1	0.263

*Significant: The probability is no greater than 0.050 that the change is due to random error

CHAPTER 3

FUNCTIONAL READING SKILLS RELATIVE TO THE HIGHEST EXPECTED LEVEL OF PERFORMANCE

While it might be desirable in our American society that all 17-year-old students be able to perform all the basic reading tasks required in the Mini-Assessment of Functional Literacy (MAFL), such a 100-percent derived performance level standard may not be the most realistic. Another, perhaps more suitable, standard against which to evaluate the functional reading skills of the various groups of 17-year-old students[1] might be the performance level achieved by a sample of 17-year-old students who are proven superior readers on the basis of having achieved above the 90th percentile on a nationally recognized standardized reading test.[2] To this end, all the MAFL exercises were administered to 100 such young people located in the Denver metropolitan area.[3] The performance level of these superior readers on each MAFL exercise was deemed to be the highest expected level of performance (HELP) for that exercise, that is, a level above which we would expect no group, otherwise defined, to achieve. Each raw P-value was adjusted to the HELP standard by converting the figure to a percentage of the HELP for that exercise according to the formula:

$$\tilde{P}_{ij} = (P_{ij}/P_{sj})\ 100, \text{ where;}$$

$\tilde{P}_{ij}$ = adjusted P-value for group i on exercise j;

P_{ij} = raw P-value for group i on exercise j;

P_{sj} = P-value for superior readers on exercise j.

For example, if 70 percent of a group answered a given exercise correctly and 90 percent of the superior readers answered the same exercise correctly, the group's P-value is adjusted to 77.8 percent or (70%/90%) 100. The means reported in this chapter are the means of the adjusted P-values.

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[1]All classifications of 17-year-old students are defined in Appendix A.
[2]The reading tests used in the high schools from which the superior readers were selected were: Nelson-Denny Reading Test; Stanford Achievement High School Battery; and Comprehensive Test of Basic Skills, California Test Bureau.
[3]Since a good reader is a good reader, regardless of what other traits he may possess, no classifications were applied to the superior readers. Likewise, since they are homogeneous on the trait of being able to read well, 100 was deemed to be an adequate, if not ideal, sample.

The Truncated MAFL[4]

In Exhibit 3-1, we report for each group of 17-year-old students, the mean ($\bar{P}$) and standard deviation (sp) of the adjusted P-values of the 64 exercises included in the truncated MAFL for 1971, 1974, and 1975. We also report each group's change in mean adjusted P-values ($\Delta\bar{P}$) from 1971 to 1974, 1974 to 1975, and 1971 to 1975; the standard error of the change ($SE\Delta\bar{P}$); the critical ratio (C.R.); and the probability that the change was due to sampling error (p).[5]

Exhibit 3-2 graphically shows the mean adjusted P-values for each group in 1971, 1974, and 1975. A plus sign (+) at the top of a group's 1974 or 1975 bar indicates that the mean P-value for that year represents a significant improvement over the group's 1971 level.

The Complete MAFL

In Exhibit 3-3, we report for each group of 17-year-old students the mean ($\bar{P}$) and standard deviation (sp) of the adjusted P-values of the 86 exercises in the complete MAFL for 1974 and 1975. We also report each group's change in mean adjusted P-values ($\Delta\bar{P}$) from 1974 to 1975, the standard error of the change ($SE\Delta\bar{P}$), the critical ratio (C.R.), and the probability (p) that the change was due to sampling error.[5] Also in Exhibit 3-3, we report this information for each group on each of the format and behavior classifications[6] of the MAFL exercise.

In all cases, any difference between the mean adjusted P-value reported for a group and 100 percent is a group's shortfall from the HELP standard.

NOTICE: All data with the exception of the probabilities in the tabular exhibits are given to one decimal place. The arithmetic operations to arrive at the changes in mean P-values ($\Delta\bar{P}$) and critical ratios (C.R.) were done at higher levels of precision and then rounded for reporting; therefore, the reported changes and critical ratios may reflect rounding error.

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[4]Of the 86 exercises that comprise the complete MAFL administered in 1974 and 1975, 64 had been used in National Assessment's 1971 full reading assessment of 17-year-old students. This subset of exercises, called the truncated MAFL, provides data on the functional reading skills of 17-year-old students at three time points.

[5]Changes for which the probability is no greater than 0.050 (significant) are indicated by an asterisk (*).

[6]The rationale of the format and behavior classifications of the MAFL exercise is given in the Preface. They are defined in Appendix C. Note that these subclassifications are not used in the truncated MAFL due to small numbers of exercises.

EXHIBIT 3-1. Means and Standard Deviations of ADJUSTED P-Values (Highest Expected Level of Performance Standard) for the TRUNCATED MAFL for 1971, 1974, and 1975; Changes in Mean P-Values from 1971 to 1974 and 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probability that the Change Was Due To Random Error.

VARIABLE	1971		1974		1975		1971-1974				1974-1975				1971-1975			
Group	$\bar{P}$	sp	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p
National	87.7	9.1	89.7	8.8	90.1	8.7	+2.0*	0.5	3.8	<0.001	+0.4	0.5	0.8	0.447	+2.4*	0.5	5.0	<0.001
REGION																		
Southeast	83.1	11.5	85.9	11.9	86.6	10.6	+2.7	1.7	1.6	0.107	+0.7	1.6	0.5	0.638	+3.5*	1.2	3.0	0.021
West	87.0	10.2	88.6	9.8	90.3	9.3	+1.6	0.9	1.6	0.097	+1.7*	0.8	2.1	0.033	+3.3*	0.9	3.8	<0.001
Central	90.2	7.6	92.3	7.3	92.0	7.9	+2.1*	0.7	2.8	0.005	-0.3	0.7	0.4	0.667	+1.8*	0.8	2.2	0.026
Northeast	89.1	9.2	90.5	8.5	90.7	8.5	+1.4	0.9	1.6	0.112	+0.2	1.0	0.2	0.873	+1.6	1.0	1.5	0.124
SEX																		
Male	86.3	9.0	88.8	8.2	89.6	8.0	+2.5*	0.6	3.8	<0.001	+0.8	0.6	1.2	0.211	+3.3*	0.6	5.5	<0.001
Female	89.1	9.8	90.6	10.2	90.6	10.2	+1.5*	0.6	2.6	0.009	-0.1	0.5	0.1	0.881	+1.4*	0.6	2.6	0.009
RACE																		
Black	72.2	15.8	75.8	16.5	77.3	16.4	+3.6*	1.6	2.3	0.021	+1.5	2.0	0.8	0.447	+5.1*	1.9	2.8	0.006
White	89.9	8.3	92.0	7.8	92.2	7.8	+2.1*	0.4	5.1	<0.001	+0.2	0.4	0.4	0.689	+2.3*	0.4	5.4	<0.001
PARENTAL EDUCATION																		
No High School	78.0	13.2	82.6	12.9	82.2	14.7	+4.6*	1.8	2.6	0.009	-0.4	1.8	0.2	0.810	+4.2*	1.5	2.9	0.004
Some High School	82.8	13.0	85.7	11.4	85.2	12.6	+2.9*	1.1	2.6	0.009	-0.6	1.3	0.4	0.660	+2.4*	1.1	2.1	0.036
Grad. High School	87.8	10.1	89.2	9.3	89.9	9.5	+1.3*	0.6	2.1	0.037	+0.7	0.6	1.2	0.226	+2.1*	0.6	3.6	<0.001
Post High School	92.3	6.8	93.1	7.3	93.5	6.7	+0.8	0.4	1.8	0.077	+0.4	0.4	1.0	0.327	+1.2*	0.4	2.7	0.007
SIZE/TYPE OF COMM.																		
Low Metro	79.4	13.7	83.0	13.2	84.7	12.0	+3.6*	1.7	2.1	0.036	+1.7	1.8	1.0	0.332	+5.3*	1.9	2.9	0.004
Extreme Rural	85.4	10.7	89.5	10.2	87.2	11.0	+4.1*	1.8	2.2	0.026	-2.3	1.9	1.2	0.226	+1.8	1.6	1.1	0.271
Small Place	87.3	9.3	89.7	8.6	90.4	8.8	+2.4*	0.9	2.7	0.007	+0.7	0.8	0.8	0.555	+3.1*	0.8	3.9	<0.001
Medium City	88.6	9.0	89.7	10.1	89.5	8.4	+1.1	1.2	0.9	0.342	-0.2	1.3	0.1	0.897	+0.9	1.2	0.8	0.447
Main Big City	88.0	10.3	90.6	7.5	89.6	11.0	+2.6	1.8	1.4	0.156	-1.0	2.2	0.5	0.638	+1.5	1.9	0.8	0.435
Urban Fringe	89.0	9.0	91.3	9.1	92.6	7.8	+2.3	1.2	1.8	0.069	+1.3	1.2	1.1	0.271	+3.6*	1.1	3.2	0.002
High Metro	93.4	6.5	95.0	7.0	93.3	8.6	+1.6	1.1	1.5	0.144	-1.7	1.4	1.3	0.208	-0.1	1.2	0.1	0.928

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 3-2. Mean Adjusted P-Values -- Highest Expected Level of Performance
(Average of the Percentages of 17-Year-Old Students Answering the Individual Exercises
Correctly Adjusted to the Percentages of Superior Readers
Answering the Individual Exercises Correctly)

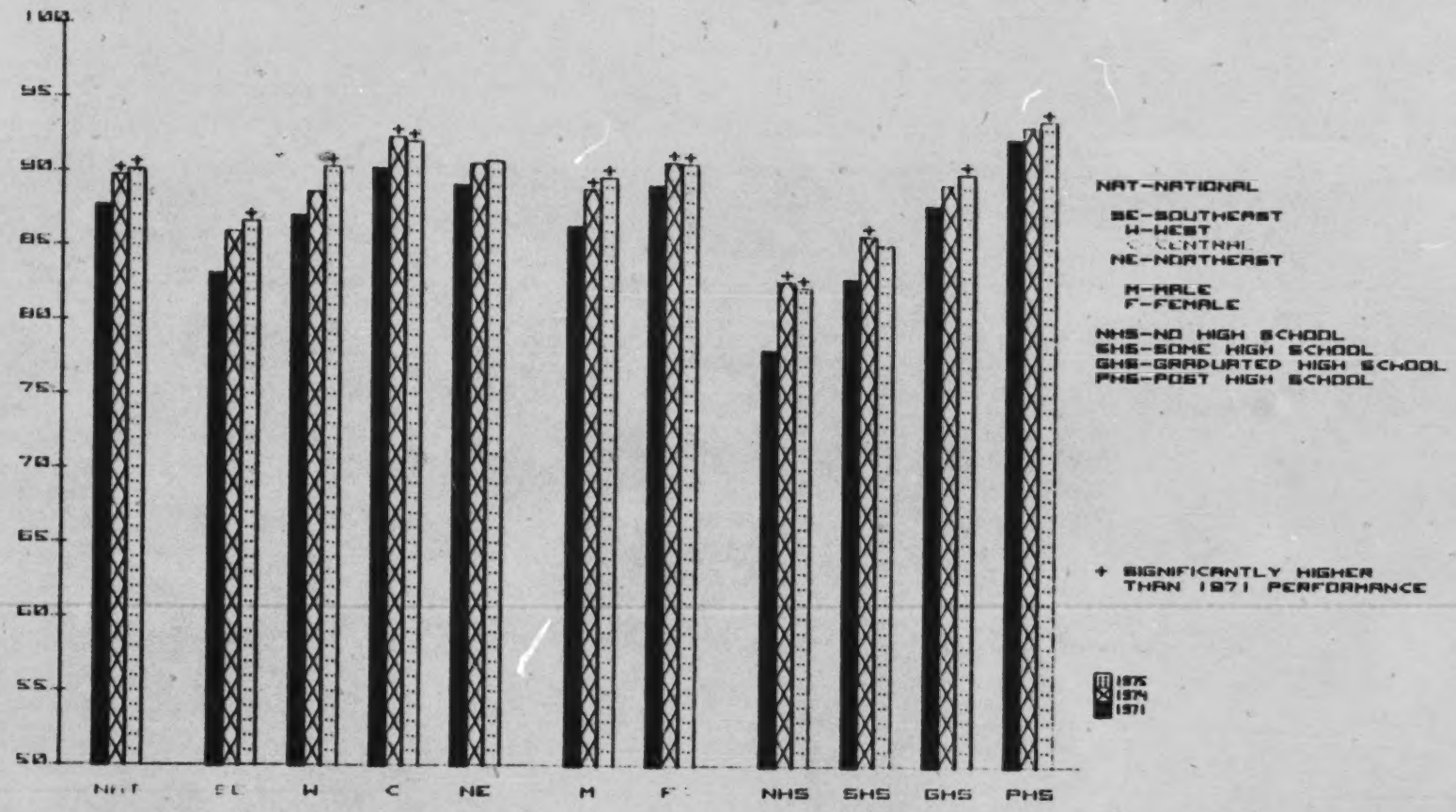

EXHIBIT 3-2 (Cont.). Mean Adjusted P-Values -- Highest Expected Level of Performance (Average of the Percentages of 17-Year-Old Students Answering the Individual Exercises Correctly Adjusted to the Percentages of Superior Readers Answering the Individual Exercises Correctly)

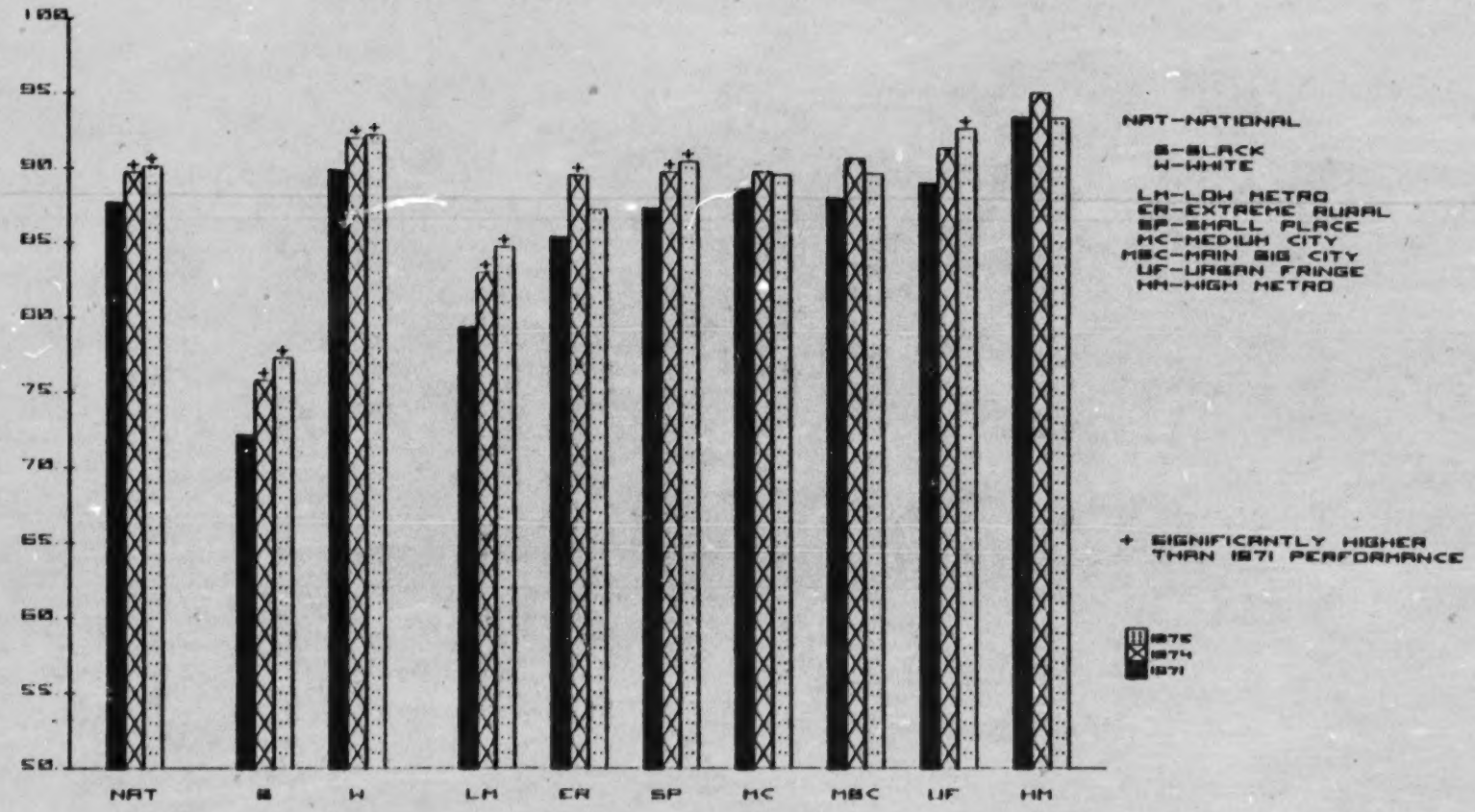

EXHIBIT 3-3(a). Means and Standard Deviations of ADJUSTED P-Values (Highest Expected Level of Performance Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes Are Due to Random Error.

VARIABLE Group	All Exercises (N=86)								Passages (N=38)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p
National	91.2	8.5	91.4	8.4	+0.2	0.4	0.5	0.646	91.4	7.3	92.5	6.6	+1.1*	0.4	2.8	0.006
REGION																
Southeast	88.1	11.4	88.3	10.5	+0.2	1.2	0.2	0.873	88.5	9.6	89.9	8.3	+1.4	1.2	1.1	0.276
West	90.3	9.3	91.6	8.8	+1.2	0.7	1.8	0.073	90.5	8.0	92.9	6.7	+2.4*	0.6	3.2	<0.001
Central	93.3	7.1	93.0	7.5	-0.3	0.6	0.5	0.624	93.5	6.4	93.8	6.7	+0.3	0.5	0.6	0.582
Northeast	91.6	8.1	91.8	8.1	+0.2	0.9	0.2	0.826	91.7	7.5	92.8	6.2	+1.1	0.9	1.3	0.204
SEX																
Male	90.2	8.2	90.6	8.1	+0.4	0.5	0.8	0.447	90.0	8.0	91.3	7.6	+1.3*	0.5	2.4	0.015
Female	92.0	9.4	91.9	9.4	-0.1	0.5	0.2	0.857	92.7	6.9	93.5	6.1	+0.8	0.4	1.9	0.061
RACE																
Black	79.1	16.4	79.7	16.3	+0.6	1.2	0.6	0.582	79.4	14.8	82.3	13.7	+2.9	1.7	1.7	0.080
White	93.2	7.4	93.2	7.4	0.0	0.4	0.0	0.976	93.4	6.2	94.1	5.8	+0.7	0.4	1.9	0.054
PARENTAL EDUCATION																
No High School	85.4	12.7	84.5	14.5	-0.9	1.4	0.6	0.535	85.8	12.2	87.2	10.6	+1.4	1.4	1.0	0.298
Some High School	88.0	11.1	86.3	12.3	-1.6	1.1	1.5	0.142	88.3	9.7	88.1	10.2	-0.2	1.2	0.2	0.881
Grad. High School	90.7	9.0	91.2	9.0	+0.5	0.5	1.0	0.317	91.0	7.9	92.3	7.3	+1.3*	0.6	2.3	0.024
Post High School	94.0	6.9	94.3	6.4	+0.3	0.4	0.8	0.484	94.0	5.7	95.1	5.2	+1.0	0.4	2.3	0.020
SIZE/TYPE OF COMM.																
Low Metro	85.2	12.8	86.4	11.7	+1.3	1.5	0.8	0.395	86.4	11.4	88.4	9.7	+2.0	1.3	1.5	0.139
Extreme Rural	91.2	9.7	88.8	10.6	-2.4	1.5	1.6	0.107	91.0	8.9	90.6	8.0	-0.4	1.6	0.3	0.795
Small Place	91.1	8.4	91.5	8.5	+0.4	0.7	0.6	0.562	91.0	7.9	92.5	7.2	+1.5*	0.7	2.0	0.043
Medium City	91.2	9.5	90.9	8.2	-0.3	1.0	0.3	0.757	91.4	7.3	92.2	6.2	+0.8	1.0	0.7	0.459
Main Big City	91.9	7.5	90.8	10.4	-1.1	1.8	0.6	0.542	91.9	7.5	92.7	8.1	+0.7	1.5	0.5	0.638
Urban Fringe	92.4	8.7	93.7	7.3	+1.3	1.0	1.3	0.190	93.0	6.9	94.4	5.5	+1.4	1.0	1.4	0.159
High Metro	95.9	6.4	94.1	8.0	-1.8	1.1	1.6	0.101	96.3	5.1	94.5	6.7	-1.8	1.2	1.4	0.147

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 3-3(b). Means and Standard Deviations of ADJUSTED P-Values (Highest Expected Level of Performance Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes Are Due to Random Error.

VARIABLE Group	Graphic Materials--Drawings, Pictures, Signs...(N=13)								Graphic Materials--Charts, Maps, Graphs (N=11)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p
National	94.7	6.8	94.2	7.9	-0.5	0.5	1.0	0.303	93.1	5.2	92.4	5.6	-0.7	0.5	1.4	0.153
REGION																
Southeast	92.4	10.3	92.3	10.4	-0.1	1.4	0.1	0.936	90.4	6.7	88.2	8.3	-2.2	1.3	1.8	0.077
West	94.3	7.2	94.0	8.0	-0.3	0.9	0.4	0.711	92.1	5.3	92.8	5.8	+0.6	1.0	0.6	0.516
Central	96.7	4.5	95.4	6.8	-1.2	0.8	1.5	0.142	94.5	5.0	94.5	4.1	0.0	0.6	0.1	0.952
Northeast	94.7	6.9	94.4	7.6	-0.2	1.2	0.2	0.841	94.4	4.7	93.2	5.5	-1.3	1.1	1.2	0.242
SEX																
Male	94.1	7.0	93.8	7.6	-0.3	0.7	0.4	0.711	92.4	5.5	91.4	6.4	-1.1	0.7	1.5	0.246
Female	95.3	7.2	94.5	8.7	-0.8	0.6	1.4	0.165	93.6	5.4	93.2	5.5	-0.4	0.6	0.8	0.441
RACE																
Black	85.3	17.1	83.7	20.2	-1.6	2.1	0.8	0.441	82.3	11.3	78.1	14.7	-4.2	2.3	1.9	0.061
White	96.6	4.8	95.7	6.3	-0.9*	0.5	2.0	0.043	95.1	4.1	94.5	4.6	-0.6	0.4	1.3	0.194
PARENTAL EDUCATION																
No High School	90.8	11.7	89.4	14.7	-1.4	1.7	0.8	0.412	86.7	8.0	85.4	9.8	-1.4	1.8	0.8	0.441
Some High School	92.3	10.0	89.8	12.8	-2.5*	1.2	2.0	0.043	91.2	7.3	88.9	7.4	-2.3	1.6	1.5	0.139
Grad. High School	94.6	7.4	94.1	8.1	-0.5	0.7	0.7	0.509	92.4	5.9	92.0	6.1	-0.4	0.7	0.5	0.603
Post High School	96.9	4.3	96.5	5.3	-0.4	0.5	0.8	0.401	95.9	3.5	95.4	4.0	-0.5	0.5	1.0	0.308
SIZE/TYPE OF COMM.																
Low Metro	88.6	13.9	89.0	13.4	+0.3	2.3	0.1	0.889	87.7	7.3	85.9	11.1	-1.7	2.6	0.7	0.497
Extreme Rural	95.6	5.9	91.9	11.5	-3.7*	1.8	2.0	0.044	93.3	6.1	90.5	6.6	-2.8	2.0	1.4	0.171
Small Place	94.8	7.2	94.6	7.5	-0.2	1.0	0.2	0.873	92.9	5.3	92.8	5.8	-0.1	0.9	0.1	0.889
Medium City	95.5	5.4	94.0	8.0	-1.5	1.2	1.3	0.208	93.7	5.7	92.0	5.4	-1.7	1.4	1.2	0.222
Main Big City	95.5	6.0	93.1	10.1	-2.4	2.9	0.8	0.412	92.7	6.0	91.8	7.6	-0.9	2.7	0.4	0.726
Urban Fringe	95.6	6.2	95.4	6.7	-0.2	1.3	0.2	0.857	94.4	3.9	94.4	4.8	0.0	1.6	0.0	0.992
High Metro	98.4	2.3	97.4	4.1	-1.0	0.9	1.1	0.254	97.8	3.1	95.4	3.7	-2.3*	0.9	2.6	0.010

*Significant: The probability is no greater than 0.050 that the change is due to random error

EXHIBIT 3-3(c). Means and Standard Deviations of ADJUSTED P-Values (Highest Expected Level of Performance Standard) for the COMPLETE MAFI and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes Are Due to Random Error

VARIABLE Group	Graphic Materials--Forms (N=10)								Reference Materials (N=14)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p
National	88.6	14.5	87.7	14.4	-0.9	0.6	1.4	0.150	87.6	7.2	87.4	6.7	-0.1	0.8	0.2	0.857
REGION																
Southeast	84.5	19.6	83.6	16.6	-0.9	1.7	0.6	0.582	83.6	9.6	83.7	8.7	+0.1	1.8	0.0	0.968
West	86.6	16.4	88.1	16.0	+1.4	1.3	1.1	0.280	87.4	7.8	87.2	7.0	-0.2	1.4	0.2	0.865
Central	91.6	11.6	90.2	12.0	-1.4	1.0	1.4	0.171	89.7	6.5	89.3	6.2	-0.4	1.4	0.3	0.772
Northeast	89.4	13.0	87.6	14.4	-1.8	1.2	1.4	0.153	88.0	6.2	88.6	6.2	+0.7	1.8	0.4	0.704
SEX																
Male	88.9	9.8	89.2	10.0	+0.4	0.8	0.4	0.682	86.4	8.2	86.3	7.4	-0.2	1.1	0.1	0.889
Female	88.3	19.4	86.2	19.1	-2.1*	0.7	3.0	0.002	88.6	6.8	88.4	6.4	-0.2	0.9	0.2	0.857
RACE																
Black	75.7	22.5	74.7	21.8	-1.0	2.1	0.5	0.638	72.1	14.7	73.8	12.2	+1.6	2.7	0.6	0.542
White	90.6	13.3	89.7	13.6	-0.9	0.5	1.7	0.093	89.7	6.1	89.8	5.8	+0.1	0.8	0.1	0.904
PARENTAL EDUCATION																
No High School	83.3	17.4	78.9	21.2	-4.4*	2.2	2.0	0.043	79.4	11.3	75.7	13.2	-3.7	3.1	1.2	0.226
Some High School	84.1	17.0	80.7	19.3	-3.4*	1.7	2.0	0.041	83.2	10.0	80.2	10.1	-3.0	2.1	1.4	0.156
Grad. High School	87.5	14.6	87.7	15.6	+0.2	0.8	0.3	0.741	86.4	7.6	87.3	7.0	+0.3	1.1	0.3	0.772
Post High School	91.9	13.1	91.0	11.6	-0.9	0.5	1.7	0.093	91.3	5.6	91.6	4.8	+0.4	0.9	0.4	0.684
SIZE/TYPE OF COMM.																
Low Metro	81.7	18.7	82.9	15.5	+1.3	2.2	0.6	0.569	79.1	10.8	81.7	10.3	+2.6	2.7	1.0	0.332
Extreme Rural	86.9	16.8	86.0	16.8	-0.9	1.9	0.5	0.631	89.3	7.5	81.8	8.8	-7.5*	3.1	2.4	0.016
Small Place	89.7	13.0	88.7	13.4	-1.0	0.9	1.2	0.246	87.5	6.4	86.9	7.5	-0.6	1.4	0.4	0.674
Medium City	87.0	18.1	86.4	13.8	-0.6	1.6	0.4	0.689	87.8	8.7	87.0	6.9	-0.8	1.7	0.5	0.638
Main Big City	92.3	7.4	84.1	18.6	-8.2*	2.7	3.0	0.002	87.5	8.0	87.5	6.6	0.0	2.9	0.0	0.992
Urban Fringe	89.0	16.3	90.3	14.2	+1.3	1.4	0.9	0.347	88.6	7.8	92.0	4.6	+3.3	1.9	1.8	0.072
High Metro	91.2	13.2	89.6	16.2	-1.7	1.5	1.1	0.263	93.6	4.8	92.1	5.5	-1.6	2.3	0.7	0.503

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 3-3(d). Means and Standard Deviations of ADJUSTED P-Values (Highest Expected Level of Performance Standard) for the COMPLETE NAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes Are Due to Random Error

VARIABLE / Group	Understand Word Meanings (N=12)								Glean Significant Facts (N=47)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p
National	96.8	5.3	97.8	1.6	+0.9*	0.2	3.8	<0.001	91.6	8.6	91.8	8.6	+0.2	0.4	0.5	0.596
REGION																
Southeast	95.1	8.9	96.5	2.8	+1.4*	0.7	2.1	0.037	88.4	11.6	88.6	10.6	+0.1	1.2	0.1	0.912
West	95.9	7.6	98.2	1.2	+2.3*	0.5	4.3	<0.001	90.5	9.6	92.2	9.2	+1.7*	0.8	2.2	0.031
Central	98.2	3.3	98.5	1.4	+0.3	0.3	0.8	0.401	93.7	7.0	93.4	7.7	-0.3	0.6	0.5	0.610
Northeast	97.2	3.2	97.6	1.8	+0.4	0.5	0.8	0.395	92.2	7.9	92.3	8.4	0.0	0.8	0.0	0.992
SEX																
Male	96.3	5.6	97.2	1.9	+0.9*	0.4	2.3	0.019	90.7	7.2	91.4	7.4	+0.7	0.5	1.3	0.197
Female	97.4	5.0	98.3	1.4	+0.9*	0.3	3.0	0.002	92.3	10.4	92.1	10.5	-0.1	0.5	0.6	0.555
RACE																
Black	92.1	10.9	94.3	4.4	+2.2*	1.1	2.0	0.043	79.7	15.1	80.6	15.5	+0.9	1.6	0.6	0.562
White	97.6	4.6	98.1	1.2	+0.7*	0.3	2.9	0.004	93.5	7.7	93.6	7.9	+0.1	0.4	0.2	0.803
PARENTAL EDUCATION																
No High School	94.4	9.6	95.4	4.0	+1.0	1.3	0.7	0.459	86.0	11.6	84.8	14.8	-1.3	1.5	0.8	0.407
Some High School	95.9	8.3	96.2	3.4	+0.3	0.9	0.3	0.795	88.1	10.6	87.1	12.5	-1.0	1.2	0.9	0.379
Grad. High School	96.9	5.5	97.8	1.3	+0.9*	0.3	3.0	0.003	91.0	8.9	91.7	9.2	+0.7	0.5	1.4	0.177
Post High School	97.8	3.8	98.8	1.0	+1.0*	0.3	3.2	0.001	94.4	7.3	94.6	6.8	+0.2	0.3	0.5	0.569
SIZE/TYPE COMM.																
Low Metro	95.5	5.4	96.1	3.2	+0.5	0.7	0.7	0.472	86.3	11.7	87.5	10.8	+1.2	1.4	0.8	0.401
Extreme Rural	96.4	9.2	97.2	2.6	+0.8	1.2	0.7	0.484	91.0	10.5	89.7	10.3	-1.3	1.4	0.9	0.373
Small Place	96.6	6.4	97.7	1.7	+1.1*	0.4	2.4	0.015	91.5	8.2	92.2	8.4	+0.7	0.7	0.9	0.322
Medium City	96.6	4.8	97.2	2.1	+0.6	0.8	0.8	0.430	91.1	11.8	91.0	8.5	-0.1	1.0	0.1	0.920
Main Big City	97.7	4.5	98.1	1.6	+0.4	0.8	0.5	0.638	92.5	6.6	91.0	11.1	-1.5	1.8	0.8	0.395
Urban Fringe	97.6	3.4	98.7	1.0	+1.2*	0.6	2.0	0.049	93.2	8.8	93.7	8.2	+0.5	1.0	0.5	0.589
High Metro	97.9	4.1	99.0	1.4	+1.1*	0.5	2.1	0.035	95.8	7.7	94.2	9.2	-1.7	1.2	1.4	0.177

*Significant: The probability is no greater than 0.050 that the change is due to random error

EXHIBIT 3-3(e). Means and Standard Deviations of ADJUSTED P-Values (Highest Expected level of Performance Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes are Due to Random Error

VARIABLE Group	Comprehend Main Ideas and Organization (N=8)								Draw Inferences (N=16)							
	1974		1975		1974-1975				1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	$SE_{\Delta\bar{P}}$	C.R.	p	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	$SE_{\Delta\bar{P}}$	C.R.	p
National	91.6	7.9	92.9	8.2	-0.7	0.5	1.4	0.153	84.2	5.6	84.6	4.6	+0.4	0.8	0.5	0.638
REGION																
Southeast	92.0	10.2	92.0	8.4	0.0	1.0	0.0	0.976	79.4	7.2	79.6	7.0	+0.2	2.1	0.1	0.920
West	93.1	7.8	92.2	9.2	-0.9	0.9	1.0	0.327	84.0	6.2	84.5	4.9	+0.6	1.3	0.5	0.646
Central	95.4	6.0	94.5	7.2	-0.9	0.6	1.6	0.119	86.8	5.7	87.0	5.0	+0.2	1.3	0.2	0.873
Northeast	93.0	9.0	92.5	8.5	-0.5	1.2	0.4	0.704	84.9	5.8	86.0	4.6	+1.1	1.6	0.7	0.503
SEX																
Male	91.9	10.2	91.2	9.9	-0.7	0.7	1.0	0.322	82.7	6.2	82.7	5.1	0.0	1.0	0.0	0.984
Female	95.2	5.6	94.4	6.8	-0.8	0.5	1.5	0.124	85.5	5.8	86.2	5.2	+0.7	0.9	0.7	0.472
RACE																
Black	90.0	14.5	83.9	13.6	-6.1*	1.6	3.8	<0.001	63.9	10.9	64.6	9.8	+0.7	2.4	0.3	0.779
White	94.8	7.1	94.5	7.1	-0.4	0.4	0.8	0.418	87.8	5.0	87.7	4.4	-0.1	0.7	0.2	0.865
PARENTAL EDUCATION																
No High School	89.4	12.3	88.8	14.0	-0.6	1.9	0.3	0.772	74.2	10.4	73.7	9.2	-0.6	2.4	0.2	0.818
Some High School	91.7	10.6	87.8	12.4	-3.9*	1.5	2.6	0.009	78.6	6.9	76.3	6.7	-2.3	2.1	1.1	0.276
Grad. High School	93.3	8.2	92.6	8.5	-0.6	0.8	0.8	0.395	83.3	6.3	84.0	5.4	+0.7	1.0	0.6	0.522
Post High School	95.5	6.2	95.4	6.1	-0.1	0.5	0.2	0.841	88.9	4.8	89.5	3.8	+0.6	0.9	0.6	0.516
SIZE/TYPE OF COMM.																
Low Metro	87.6	13.8	88.0	12.1	+0.4	1.9	0.2	0.214	72.9	8.5	75.8	8.7	+2.8	2.6	1.1	0.276
Extreme Rural	94.8	6.3	90.3	9.3	-4.5*	1.3	3.6	<0.001	85.7	6.2	79.6	6.6	-6.0*	2.9	2.1	0.037
Small Place	93.5	7.5	93.5	8.2	0.0	0.7	0.1	0.944	84.0	5.7	83.6	5.6	-0.4	1.4	0.3	0.764
Medium City	94.5	7.8	93.6	6.9	-0.8	0.9	0.9	0.368	85.2	6.1	84.9	5.0	-0.3	1.9	0.2	0.881
Main Big City	94.0	7.7	90.1	11.7	-4.0	2.2	1.8	0.066	84.3	6.2	85.1	7.2	+0.8	3.1	0.3	0.795
Urban Fringe	93.8	8.6	94.4	6.8	+0.6	1.4	0.4	0.660	85.5	7.0	89.9	3.5	+4.3*	2.0	2.1	0.033
High Metro	97.0	5.6	95.9	6.5	-1.1	1.3	0.8	0.412	93.7	4.6	89.1	4.8	-4.6*	1.8	2.6	0.009

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 3-3(f). Means and Standard Deviations of ADJUSTED P-Values (Highest Expected Level of Performance Standard) for the COMPLETE MAFL and the Formats and Behaviors for 1974 and 1975; Changes in Mean P-Values from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes are Due to Random Error

VARIABLE	Read Critically (N=3)							
Group	1974		1975		1974-1975			
	$\bar{P}$	sp	$\bar{P}$	sp	$\Delta\bar{P}$	SE$\Delta\bar{P}$	C.R.	p
National	92.8	8.1	90.7	11.0	-2.1*	0.8	2.8	0.005
REGION								
Southeast	90.1	11.3	87.3	13.8	-2.8	2.0	1.4	0.165
West	92.4	7.4	91.3	10.2	-1.1	1.5	0.7	0.484
Central	95.4	5.4	92.0	10.1	-3.4*	1.2	2.9	0.004
Northeast	92.0	9.5	91.2	10.7	-0.8	1.6	0.5	0.603
SEX								
Male	94.3	5.3	92.9	7.8	-1.4	1.0	1.4	0.165
Female	91.5	10.6	88.7	13.8	-2.8*	1.1	2.6	0.009
RACE								
Black	81.4	20.6	77.1	25.5	-4.3	3.8	1.1	0.254
White	95.0	5.6	92.5	9.2	-2.5*	0.7	3.3	0.001
PARENTAL EDUCATION								
No High School	87.3	12.3	82.6	19.7	-4.8	2.9	1.6	0.107
Some High School	88.3	12.7	83.7	16.2	-4.6	2.4	1.9	0.060
Grad. High School	93.8	9.6	90.5	11.7	-3.4*	1.4	2.3	0.020
Post High School	96.2	4.4	94.2	7.6	-2.1*	0.8	2.6	0.008
SIZE/TYPE OF COMM.								
Low Metro	84.9	17.4	88.3	16.4	+3.4	4.0	0.8	0.395
Extreme Rural	94.0	5.5	85.6	16.5	-8.4*	3.5	2.4	0.018
Small Place	92.7	8.8	91.8	10.1	-0.9	1.5	0.6	0.575
Medium City	95.2	4.1	89.5	12.0	-5.7*	2.0	2.8	0.005
Main Big City	93.4	7.4	90.1	11.9	-3.3	3.7	0.9	0.368
Urban Fringe	92.7	9.2	92.4	9.4	-0.3	2.6	0.1	0.897
High Metro	97.3	2.3	95.1	6.8	-2.2	1.8	1.3	0.208

*Significant: The probability is no greater than 0.050 that the change is due to random error.

CHAPTER 4

FUNCTIONAL READING SKILLS RELATIVE TO THE MINIMALLY ADEQUATE PERFORMANCE STANDARD

The National Right to Read Effort determined that a 17-year-old student must be able to answer at least 75 percent of the exercise administered in the Mini-Assessment of Functional Literacy (MAFL)[1] in order for his functional reading performance to be considered minimally adequate and any failing this criterion might reasonably be considered functionally illiterate. This, then, is the third standard against which we evaluate the functional reading skills of 17-year-old students.

In Exhibit 4-1, we report the percentages of 17-year-old students in each group[2] who attained or surpassed the minimally adequate performance (MAP) standard by correctly answering at least 75 percent of the MAFL exercises in 1974 and 1975 (Pct.), the changes from 1974 to 1975 (ΔP), the standard errors of the changes ($SE\Delta P$), the critical ratios (C.R.) and the probability that each change was due to random error (p). Any change for which the probability is no larger than 0.050, i.e., statistically significant, is flagged with an asterisk (*).

For the convenience of those who would like to examine the percentages of various groups of 17-year-old students who attained other percentages of MAFL exercises, Exhibit 4-1 also gives the above information for the percentages that correctly answered at least 95, 90, 85, 80, 70, 65, 60, 55, 50, and 25 percent of the MAFL exercises.

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[1]Since any given 17-year-old student in the MAFL sample attempted only about half the MAFL exercises, the percentage of all 86 MAFL exercises he would have answered correctly had he attempted them was statistically estimated from the percentage of exercises he answered correctly of those he did attempt. A paper on this procedure can be obtained by writing to:

Dr. Donald T. Searls
National Assessment of Educational Progress
Suite 700, Lincoln Tower
1860 Lincoln Street
Denver, Colorado 80295

[2]All classifications of 17-year-old students are defined in Appendix A.

EXHIBIT 4-1(a). Percentages of 17-Year-Old Students in Each Group Who Correctly Answered AT LEAST Each of the Indicated Percentages of MAFL Exercises in 1974 and 1975; Changes in the Percentages from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes Are Due to Random Error

VARIABLE	95% of MAFL Exercises						90% of MAFL Exercises						85% of MAFL Exercises					
	1974	1975	1974-1975				1974	1975	1974-1975				1974	1975	1974-1975			
Group	Pct.	Pct.	ΔP	SEΔP	C.R.	p	Pct.	Pct.	ΔP	SEΔP	C.R.	p	Pct.	Pct.	ΔP	SEΔP	C.R.	p
National	31.3	30.0	-1.3	1.6	0.8	0.412	55.6	55.6	0.0	1.8	0.0	1.000	71.9	72.0	+0.1	1.6	0.1	0.952
REGION																		
Southeast	25.0	24.8	-0.2	2.8	0.1	0.944	46.0	47.7	+1.7	3.7	0.4	0.653	61.9	62.3	+0.4	4.6	0.1	0.928
West	24.6	29.1	+4.5	2.9	1.6	0.121	55.6	54.2	-1.4	3.0	0.5	0.638	72.3	71.4	-0.9	2.4	0.4	0.787
Central	37.8	34.6	-3.2	2.8	1.1	0.254	60.9	61.5	+0.6	2.8	0.2	0.834	77.3	77.4	+0.1	2.7	0.0	0.968
Northeast	33.0	29.4	-3.6	3.8	0.9	0.347	56.0	56.5	+0.5	4.3	0.1	0.904	72.1	74.1	+2.0	3.2	0.6	0.529
SEX																		
Male	29.5	27.2	-2.3	2.0	1.1	0.263	51.6	52.9	+1.3	2.2	0.6	0.549	68.1	68.8	+0.7	2.0	0.3	0.734
Female	33.1	32.3	-0.8	1.9	0.4	0.674	59.2	58.0	-1.1	2.2	0.6	0.549	75.5	74.8	-0.7	1.8	0.4	0.697
RACE																		
Black	7.8	6.4	-1.4	2.9	0.5	0.624	21.1	17.3	-3.8	3.4	1.1	0.258	33.0	35.1	+2.1	4.4	0.5	0.638
White	35.8	33.9	-1.9	2.0	1.0	0.332	61.1	61.6	+0.5	1.8	0.3	0.787	78.0	77.9	-0.1	1.4	0.1	0.944
PARENTAL EDUCATION																		
No High School	13.0	9.9	-3.1	3.3	1.0	0.342	33.7	31.2	-2.5	4.8	0.5	0.603	49.8	48.4	-1.4	5.5	0.3	0.795
Some High School	22.8	17.2	-5.6	3.6	1.6	0.119	40.9	38.5	-2.4	4.1	0.6	0.555	60.3	54.5	-5.8	4.5	1.3	0.197
Grad. High School	28.6	27.3	-1.3	2.2	0.6	0.549	55.5	53.2	-2.3	2.2	1.0	0.298	71.3	71.4	+0.1	2.0	0.0	1.000
Post High School	39.1	38.8	-0.3	2.4	0.1	0.904	64.0	66.5	+2.5	2.3	1.1	0.276	80.7	81.6	+0.9	1.7	0.5	0.596
SIZE/TYPE OF COMM.																		
Low Metro	14.1	15.6	+1.5	3.1	0.5	0.631	34.8	38.0	+3.2	5.9	0.5	0.589	51.2	56.8	+5.6	5.5	1.0	0.308
Extreme Rural	35.3	26.8	-8.5	5.8	1.5	0.142	56.9	48.5	-8.4	6.1	1.4	0.168	69.9	62.3	-7.6	5.6	1.4	0.177
Small Place	29.3	28.9	-0.4	3.1	0.1	0.897	52.9	55.0	+2.1	3.5	0.6	0.549	72.1	72.6	+0.5	2.7	0.2	0.849
Medium City	32.6	32.0	-0.6	3.3	0.2	0.857	58.1	55.7	-2.4	3.4	0.7	0.478	73.0	70.5	-2.5	3.4	0.7	0.472
Main Big City	34.4	27.1	-7.3	6.2	1.3	0.238	56.4	52.4	-4.0	7.9	0.5	0.617	72.8	67.8	-5.0	6.7	0.8	0.453
Urban Fringe	30.6	35.8	+5.2	4.6	1.1	0.263	61.6	63.7	+2.1	5.2	0.4	0.682	78.7	80.4	+1.7	3.8	0.4	0.653
High Metro	51.4	38.0	-13.4*	5.0	2.7	0.007	74.6	66.4	-8.2*	3.8	2.1	0.032	85.4	81.0	-4.4	4.3	1.0	0.303

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 4-1(b) Percentages of 17-Year-Old Students in Each Group Who Correctly Answered AT LEAST Each of the Indicated Percentages of MAFL Exercises in 1974 and 1975; Changes in the Percentages from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes Are Due to Random Error

VARIABLE	80% of MAFL Exercises						75% of MAFL Exercises						70% of MAFL Exercises					
	1974	1975	1974-1975				1974	1975	1974-1975				1974	1975	1974-1975			
Group	Pct.	Pct.	ΔP	SEΔP	C.R.	p	Pct.	Pct.	ΔP	SEΔP	C.R.	p	Pct.	Pct.	ΔP	SEΔP	C.R.	p
National	81.7	82.2	+0.5	1.3	0.4	0.704	86.8	87.4	+0.6	1.1	0.5	0.596	91.7	92.2	+0.5	0.8	0.6	0.549
REGION																		
Southeast	72.3	74.4	+2.1	3.9	0.5	0.596	79.3	80.0	+0.7	3.6	0.2	0.841	86.3	85.7	-0.6	2.6	0.2	0.818
West	81.7	82.9	+1.2	1.9	0.6	0.529	86.7	88.0	+1.3	2.0	0.6	0.516	90.6	93.1	+2.5	1.6	1.5	0.129
Central	87.0	86.4	-0.6	2.2	0.3	0.779	91.2	90.9	-0.3	1.6	0.2	0.849	95.4	95.3	-0.1	1.0	0.1	0.920
Northeast	82.0	83.6	+1.6	2.7	0.6	0.549	86.9	89.0	+2.1	2.2	1.0	0.337	92.3	93.0	+0.7	1.6	0.4	0.667
SEX																		
Male	78.3	80.1	+1.8	1.7	1.0	0.303	84.7	85.4	+0.7	1.4	0.5	0.624	90.0	90.2	+0.2	1.1	0.2	0.857
Female	84.8	84.1	-0.7	1.4	0.5	0.631	88.7	89.1	+0.4	1.4	0.3	0.772	93.3	93.5	+0.2	1.0	0.2	0.849
RACE																		
Black	47.8	48.9	+1.1	4.9	0.2	0.826	55.6	58.4	+2.8	5.0	0.6	0.575	67.1	69.0	+1.9	4.1	0.5	0.646
White	87.1	87.6	+0.5	1.2	0.4	0.667	91.7	91.8	+0.1	0.9	0.1	0.912	95.4	95.6	+0.2	0.6	0.3	0.749
PARENTAL EDUCATION																		
No High School	67.9	62.7	-5.2	5.0	1.0	0.303	77.7	70.7	-7.0	4.6	1.5	0.124	85.4	79.3	-6.1	3.5	1.7	0.082
Some High School	80.9	66.4	-14.5*	3.8	3.8	<0.001	79.1	76.6	-2.5	3.6	0.7	0.484	86.5	85.9	-0.6	2.9	0.2	0.834
Grad. High School	80.5	82.3	+1.8	1.8	1.0	0.322	85.7	87.5	+1.8	1.5	1.2	0.234	90.7	93.0	+2.3	1.2	2.0	0.051
Post High School	88.9	90.3	+1.4	1.5	0.9	0.358	93.1	93.9	+0.8	1.0	0.8	0.435	96.3	96.6	+0.3	0.7	0.4	0.653
SIZE/TYPE OF COMM.																		
Low Metro	64.1	71.9	+7.8	4.6	1.7	0.093	73.0	78.5	+5.5	4.2	1.3	0.194	82.1	82.5	+0.4	3.2	0.1	0.904
Extreme Rural	81.6	74.4	-7.2	5.3	1.4	0.177	87.3	80.3	-7.0	3.9	1.8	0.073	92.2	87.3	-4.9*	2.5	2.0	0.047
Small Place	81.1	82.7	+1.6	2.2	0.7	0.465	86.5	88.5	+2.0	1.9	1.0	0.294	92.0	92.8	+0.8	1.4	0.6	0.569
Medium City	83.4	81.9	-1.5	3.0	0.5	0.617	87.5	85.5	-2.0	2.8	0.7	0.484	91.8	90.6	-1.2	2.5	0.5	0.631
Main Big City	82.3	80.0	-2.3	5.9	0.4	0.697	79.9	85.9	+6.0	4.7	1.3	0.201	91.4	92.9	+1.5	3.3	0.5	0.646
Urban Fringe	87.2	87.8	+0.6	2.7	0.2	0.849	91.3	95.0	+3.7	2.2	1.7	0.095	94.4	96.2	+1.8	1.7	1.0	0.303
High Metro	93.2	89.1	-4.1	3.8	1.1	0.280	95.4	92.6	-2.8	3.3	0.8	0.401	98.5	96.7	-1.8	1.6	1.1	0.250

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 4-1(c). Percentages of 17-Year-Old Students in Each Group Who Correctly Answered AT LEAST Each of the Indicated Percentages of MAFL Exercises in 1974 and 1975; Changes in the Percentages from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes Are Due to Random Error

VARIABLE	65% of MAFL Exercises						60% of MAFL Exercises						55% of MAFL Exercises					
	1974	1975	1974-1975				1974	1975	1974-1975				1974	1975	1974-1975			
Group	Pct.	Pct.	AP	SEAP	C.R.	p	Pct.	Pct.	AP	SEAP	C.R.	p	Pct.	Pct.	AP	SEAP	C.R.	p
National	95.1	95.2	+0.1	0.7	0.2	0.881	97.0	97.1	+0.1	0.5	0.2	0.841	98.2	98.3	+0.1	0.3	0.3	0.772
REGION																		
Southeast	91.2	90.0	-1.2	2.1	0.6	0.569	94.2	93.3	-0.9	1.5	0.6	0.562	96.6	95.8	-0.8	0.9	0.9	0.390
West	93.6	96.2	+2.6*	1.2	2.1	0.036	95.8	97.8	+2.0	1.1	1.8	0.080	97.2	98.8	+1.6*	0.8	2.0	0.048
Central	97.9	98.0	+0.1	0.9	0.1	0.904	99.2	98.8	-0.4	0.6	0.7	0.509	99.4	99.2	-0.2	0.4	0.4	0.660
Northeast	95.9	95.4	-0.5	1.2	0.4	0.689	98.1	97.5	-0.6	0.8	0.7	0.478	98.8	98.8	0.0	0.5	0.0	1.000
SEX																		
Male	93.8	94.0	+0.2	0.9	0.2	0.818	96.5	96.1	-0.4	0.7	0.5	0.589	97.7	97.9	+0.2	0.5	0.4	0.682
Female	96.3	96.2	-0.1	0.8	0.1	0.897	97.5	97.9	+0.4	0.5	0.8	0.441	98.6	98.6	0.0	0.4	0.0	1.000
RACE																		
Black	78.8	78.5	-0.3	4.1	0.1	0.944	86.6	85.3	-1.3	2.9	0.4	0.653	91.8	89.9	-1.9	2.2	0.9	0.384
White	97.5	97.7	+0.2	0.5	0.4	0.667	98.6	98.8	+0.2	0.4	0.6	0.569	99.2	99.4	+0.2	0.2	0.9	0.363
PARENTAL EDUCATION																		
No High School	90.0	86.1	-3.9	2.8	1.4	0.171	92.9	94.6	+1.7	1.9	0.9	0.379	95.7	97.3	+1.6	1.6	1.0	0.308
Some High School	93.1	92.3	-0.8	2.3	0.3	0.734	96.2	93.7	-2.5	2.0	1.2	0.215	97.0	96.4	-0.6	1.4	0.4	0.660
Grad. High School	94.5	95.8	+1.3	0.9	1.5	0.139	96.3	97.6	+1.3	0.8	1.7	0.087	98.0	98.6	+0.6	0.5	1.1	0.258
Post High School	97.8	98.2	+0.4	0.6	0.7	0.490	99.0	98.7	-0.3	0.4	0.9	0.390	99.5	99.3	-0.2	0.3	0.8	0.441
SIZE/TYPE OF COMM.																		
Low Metro	90.0	91.0	+1.0	3.0	0.3	0.976	93.2	91.4	-1.8	2.4	0.8	0.441	95.8	95.3	-0.5	1.7	0.3	0.772
Extreme Rural	95.4	91.7	-3.7	2.0	1.8	0.064	97.8	94.3	-3.5*	1.7	2.1	0.036	98.5	96.4	-2.1	1.4	1.5	0.124
Small Place	95.0	97.6	+2.6*	1.2	2.3	0.024	97.1	97.7	+0.6	0.9	0.7	0.483	98.2	98.5	+0.3	0.7	0.4	0.667
Medium City	95.5	92.6	-2.9	2.1	1.4	0.171	97.0	96.4	-0.6	1.1	0.5	0.589	98.2	97.6	-0.6	0.7	0.8	0.407
Main Big City	94.0	95.3	+1.3	2.3	0.6	0.697	96.8	97.0	+0.2	1.5	0.1	0.897	98.7	98.9	+0.2	0.8	0.2	0.810
Urban Fringe	97.2	98.1	+0.9	1.2	0.8	0.441	98.7	99.1	+0.4	0.9	0.4	0.660	98.9	99.6	+0.7	0.7	1.0	0.337
High Metro	99.1	98.3	-0.8	1.1	0.7	0.465	99.1	99.4	+0.3	0.8	0.4	0.711	99.5	100.0	+0.5	0.4	1.4	0.177

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 4-1(d). Percentages of 17-Year-Old Students in Each Group Who Correctly Answered AT LEAST Each of the Indicated Percentages of MAFL Exercises in 1974 and 1975; Changes in the Percentages from 1974 to 1975, Standard Errors of the Changes, Critical Ratios, and Probabilities that the Changes Are Due to Random Error

VARIABLE	50% of MAFL Exercises						25% of MAFL Exercises					
	1974	1975	1974-1975				1974	1975	1974-1975			
Group	Pct.	Pct.	ΔP	SEΔP	C.R.	p	Pct.	Pct.	ΔP	SEΔP	C.R.	p
National	98.9	99.1	+0.2	0.2	0.9	0.384	99.8	99.9	+0.1	0.1	1.1	0.267
REGION												
Southeast	98.2	97.6	-0.6	0.6	0.9	0.347	99.8	99.9	+0.1	0.2	0.7	1.000
West	98.3	99.6	+1.3*	0.5	2.5	0.011	99.5	100.0	+0.5	0.3	1.9	0.055
Central	99.8	99.4	-0.4	0.3	1.2	0.226	99.9	99.9	0.0	0.1	0.0	1.000
Northeast	99.2	99.4	+0.2	0.4	0.6	0.575	99.8	99.7	-0.1	0.2	0.6	0.575
SEX												
Male	98.8	98.7	-0.1	0.3	0.3	0.764	99.6	99.8	+0.2	0.2	1.0	0.124
Female	99.2	99.4	+0.2	0.3	0.7	0.459	100.0	99.9	-0.1*	0.0	2.5	0.012
RACE												
Black	95.0	95.0	0.0	1.9	0.0	1.000	99.6	99.5	-0.1	0.4	0.2	0.610
White	99.7	99.6	-0.1	0.1	0.8	0.441	99.9	100.0	+0.1	0.1	1.2	0.211
PARENTAL EDUCATION												
No High School	97.3	98.7	+1.4	1.3	1.1	0.271	99.1	99.9	+0.8*	0.3	2.8	0.006
Some High School	98.0	97.6	-0.4	1.2	0.3	0.726	100.0	100.0	0.0	0.0	---	---
Grad. High School	99.0	99.4	+0.4	0.4	1.0	0.294	100.0	100.0	0.0	0.1	0.0	1.000
Post High School	99.8	99.6	-0.2	0.2	1.0	0.294	99.9	99.9	0.0	0.1	0.0	1.000
SIZE/TYPE OF COMM.												
Low Metro	97.6	96.7	-0.9	1.4	0.6	0.509	99.5	99.8	+0.3	0.3	1.1	0.285
Extreme Rural	99.1	98.5	-0.6	0.9	0.7	0.503	99.6	100.0	+0.4*	0.2	2.5	0.012
Small Place	98.6	99.4	+0.8	0.4	1.8	0.075	100.0	99.8	-0.2	0.1	1.7	0.095
Medium City	98.6	98.5	-0.1	0.6	0.2	0.865	99.6	99.7	+0.1	0.3	0.3	0.772
Main Big City	99.6	99.8	+0.2	0.4	0.5	0.596	100.0	99.8	-0.2	0.2	0.8	0.407
Urban Fringe	99.1	99.6	+0.5	0.6	0.8	0.395	99.6	100.0	+0.4	0.3	1.3	0.184
High Metro	99.8	100.0	+0.2	0.2	0.8	0.407	100.0	100.0	0.0	0.0	---	---

*Significant: The probability is no greater than 0.050 that the change is due to random error.

CHAPTER 5

HIGHLIGHTS OF THE MINI-ASSESSMENT OF FUNCTIONAL LITERACY

Several of the exercises administered in the Mini-Assessment of Functional Literacy (MAFL) stand out from the others in that the performance on them by 17-year-old students departed markedly from the norm in one of three ways: (1) on three exercises, their performance was consistently low in all three assessment years -- 1971, 1974, and 1975; (2) on three exercises, their performance declined over the four-year period markedly more than one would expect on the basis of the changes in the mean P-Values; and (3) on four exercises, their performance improved markedly more than one would expect on the basis of the changes in the mean P-Values.

Low-Performance Exercises

A. Replica of an insurance policy statement. The students were asked for the amount of coverage for bodily injury liability. The correct answer required combining information in a column with information in the column heading -- a common billing practice.

B. Facsimile of a book-club membership application. The students were asked for the amount of money required to be sent in with the application. The application stated that applicants would be billed for a certain amount. Most of those who erred on this exercise said they would send in the amount to be billed.

C. Replica of a traffic ticket. The students were asked to identify the date by which a fine for overtime parking must be paid. The ticket stipulated different allotted time periods for the payment of parking fines and fines for moving violations, but the final date for payment of a fine for moving violations was not among the available response choices.

The percentages of all 17-year-old students (national level) who correctly answered these three exercises in 1971, 1974, and 1975 are shown graphically on Exhibit 5-1. Exhibit 5-2 tabulates the percentages of each group of 17-year-old students who correctly answered the three exercises in 1971, 1974, and 1975.

Declining-Performance Exercises

A. Short (four-line) passage about Colorado mountains. The students were asked to identify a sentence about Colorado gold as the one not belonging with the others.

B. Replica of a report card. The students were asked to identify the subject in which improvement was shown. The correct answer required using a coding key, but this was consistent in all three assessments.

C. Facsimile of a billboard sign. The students were asked to identify where they would probably see the sign.

The percentages of all 17-year-old students who correctly answered these three exercises in 1971, 1974, and 1975 are shown graphically on Exhibit 5-3. Exhibit 5-4 tabulates the percentages of each group of 17-year-old students who correctly answered the three exercises in 1971, 1974, and 1975.

Improving-Performance Exercises

A-B. Facsimile of a help-wanted ad. The students were asked

(A) to identify how they should apply for the job and

(B) to give the meaning of "Equal Opportunity Employer."

C-D. Facsimile of a coupon. The students were asked

(C) to identify to whom the product (allegedly) appealed and

(D) to identify the sizes of the product for which the coupon was redeemable.

The percentages of all 17-year-old students who correctly answered these four exercises in 1971, 1974, and 1975 are shown graphically on Exhibit 5-5. Exhibit 5-4 tabulates the percentages of each group of 17-year-old students who correctly answered the four exercises in 1971, 1974, and 1975.

EXHIBIT 5-1. National P-Value for Three Exercises on Which 17-Year-Old Students Performed Consistently Low

A = Insurance Policy Statement -- Bodily Injury Liability
B = Book-Club Application -- Money to Send in
C = Traffic Ticket -- Date to Pay

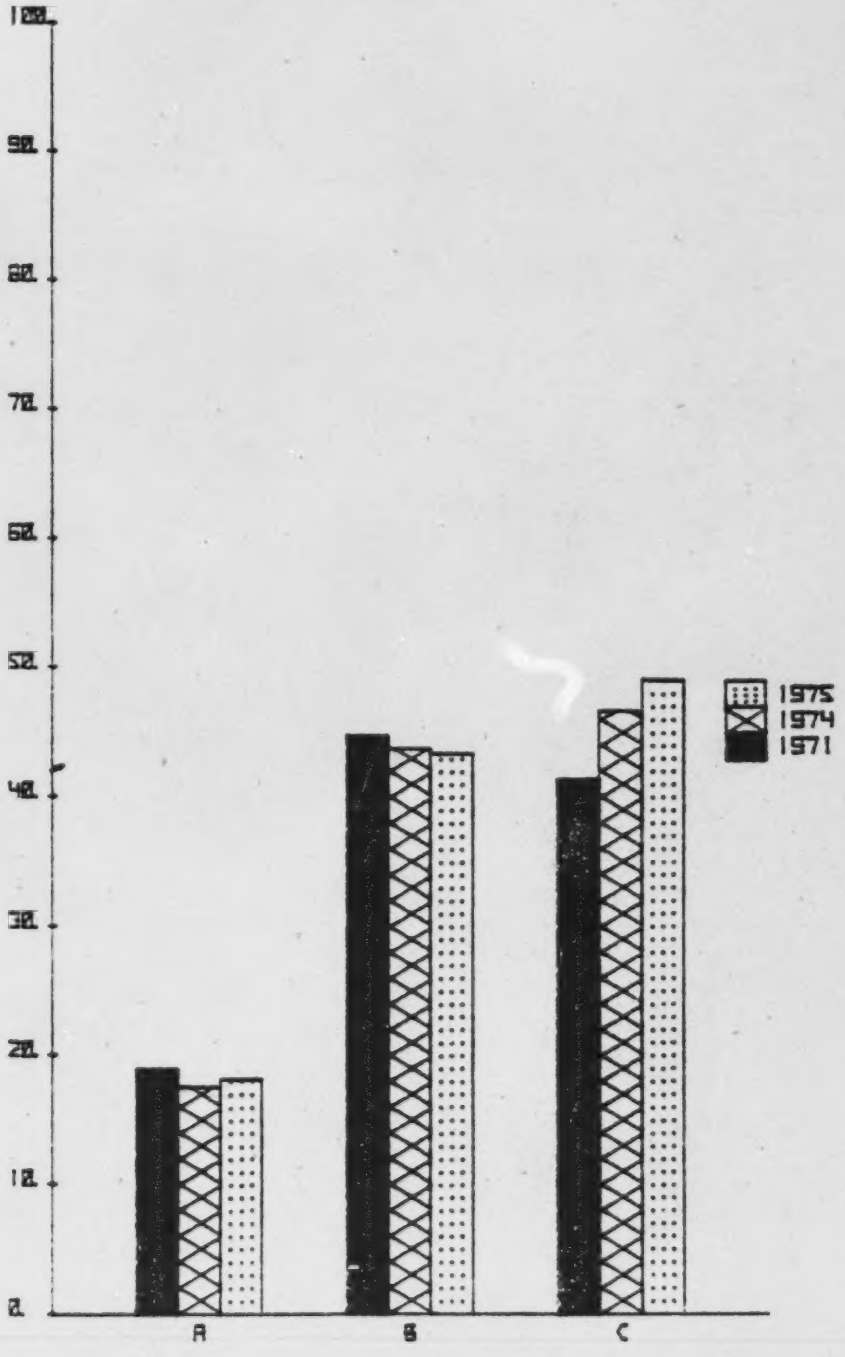

EXHIBIT 5-2. Raw P-Values for the Unique Exercises on Which 17-Year-Old Students Performed Extremely Low Consistently

VARIABLE Group	Ins. Policy Bodily Liability			Book-Club App. Money To Send In			Traffic Ticket Date to be Paid		
	1971	1974	1975	1971	1974	1975	1971	1974	1975
National	18.9	17.5	18.1	44.7	43.7	43.3	41.3	46.6	49.0
REGION									
Southeast	14.6	10.9	16.5	43.9	42.6	42.9	38.1	42.1	39.5
West	16.9	14.4	16.3	41.7	41.3	46.8	35.6	46.4	53.0
Central	24.4	22.0	21.1	47.3	44.6	40.2	48.4	51.4	49.8
Northeast	17.9	19.1	17.9	45.1	45.4	43.9	40.5	44.8	52.5
SEX									
Male	21.9	23.1	25.1	42.3	42.2	42.2	43.5	46.7	50.0
Female	15.7	11.8	11.8	46.8	45.2	44.4	39.5	46.5	48.2
RACE									
Black	10.0	6.9	11.7	33.5	36.6	37.1	23.5	27.5	28.8
White	20.2	19.1	19.2	46.1	44.7	44.1	43.6	51.2	51.5
PARENTAL EDUCATION									
No High School	13.8	13.3	8.4	45.7	42.4	47.5	33.1	30.0	50.8
Some High School	15.7	14.4	11.4	43.3	45.9	34.4	28.4	42.8	44.2
Grad. High School	17.1	16.8	17.0	46.2	42.8	40.9	39.9	46.1	46.7
Post High School	22.9	19.7	21.5	45.2	45.2	45.8	47.2	51.1	52.2
SIZE/TYPE OF COMM.									
Low Metro	10.0	13.0	18.8	46.7	46.1	42.2	30.0	36.1	39.1
Extreme Rural	18.8	14.6	17.0	47.7	44.2	40.5	36.1	51.1	44.8
Small Place	20.0	19.4	19.8	44.9	41.4	45.9	37.6	44.2	46.7
Medium City	19.4	12.8	18.7	44.0	38.2	43.9	46.8	48.9	53.9
Main Big City	13.3	27.6	14.0	42.4	46.9	41.3	45.0	50.5	57.0
Urban Fringe	20.2	15.0	17.7	43.2	48.1	43.0	45.6	45.7	50.1
High Metro	23.7	19.4	15.6	46.1	49.3	39.5	50.5	58.5	52.9

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 5-3. National P-Values for Three Exercises on Which 17-Year-Old Students Declined Markedly

A = Passage -- Colorado Mountains
B = Report Card -- What Subject Improved
C = Sign-Horsepower -- Where See Sign

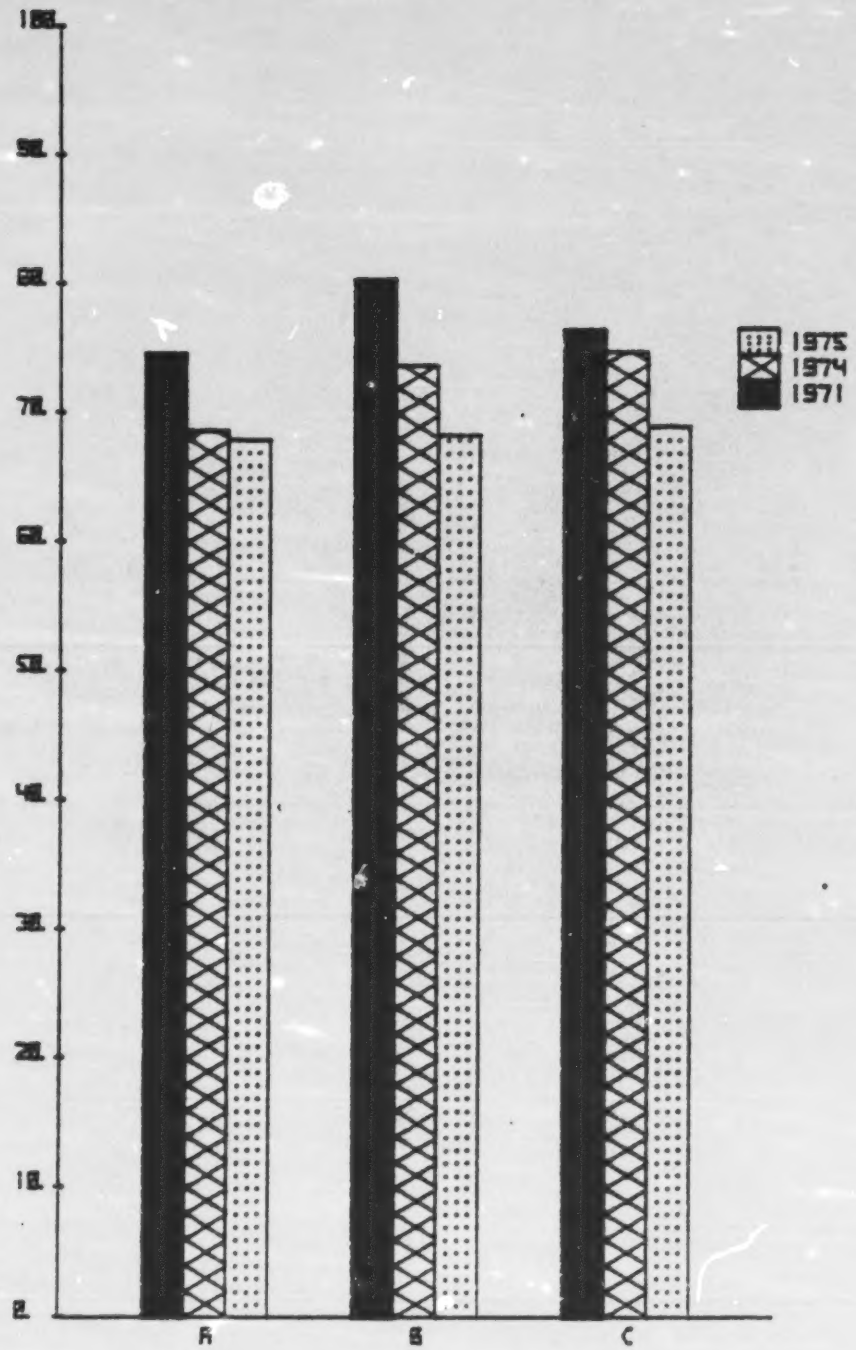

EXHIBIT 5-4. Raw P-Values for the Unique Exercises on Which 17-Year-Old Student Performance Declined Markedly

VARIABLE Group	Passage-Colo. Mts. Sent. Doesn't Belong			Report Card Subj. Improving			Sign-Horsepower Where See Sign		
	1971	1974	1975	1971	1974	1975	1971	1974	1975
National	74.6	68.6	67.9	80.4	73.7	68.3	76.5	74.8	69.0
REGION									
Southeast	69.7	61.9	67.6	68.2	64.9	53.7	70.1	68.3	62.4
West	71.2	69.7	65.8	80.5	74.7	69.3	75.7	75.4	70.8
Central	78.6	74.8	70.6	85.1	74.9	75.0	80.8	80.8	71.6
Northeast	76.4	64.5	67.0	84.0	77.5	71.7	77.2	72.3	70.0
SEX									
Male	69.5	62.1	63.7	76.4	73.7	66.7	81.2	79.8	75.3
Female	79.1	75.2	71.8	83.9	73.7	69.6	71.8	70.3	63.7
RACE									
Black	52.9	48.9	51.1	53.9	45.6	31.6	49.8	48.1	37.8
White	77.5	71.3	71.5	83.8	78.8	72.9	80.2	80.2	73.2
PARENTAL EDUCATION									
No High School	60.6	57.8	50.4	54.7	62.7	43.6	63.7	64.4	50.4
Some High School	68.5	60.1	55.4	74.9	63.6	56.7	58.3	64.8	55.9
Grad. High School	74.0	67.7	66.9	80.8	73.0	66.8	75.5	72.2	68.0
Post High School	80.4	74.1	75.0	87.3	81.0	76.7	85.9	82.8	76.7
SIZE/TYPE OF COMM.									
Low Metro	63.5	50.5	55.8	72.4	53.9	52.1	56.2	55.4	56.2
Extreme Rural	73.1	77.1	66.1	66.5	71.8	56.3	70.1	79.3	57.4
Small Place	73.5	69.7	67.9	77.8	75.8	67.9	78.0	73.8	71.4
Medium City	76.2	68.7	72.6	83.9	73.4	66.4	75.1	82.3	66.7
Main Big City	74.6	69.5	57.9	84.9	75.6	56.2	79.4	76.4	67.4
Urban Fringe	76.9	66.7	72.4	85.5	79.1	83.0	75.8	73.3	72.8
High Metro	82.5	76.2	74.2	86.6	86.0	77.8	87.9	86.5	78.6

*Significant: The probability is no greater than 0.050 that the change is due to random error.

EXHIBIT 5-5. National P-Values for Four Exercises on Which 17-Year-Old Students Improved Markedly

A = Help-Wanted Ad -- How to Apply
B = Help-Wanted Ad -- "Equal Opportunity Employer" Meaning
C = Coupon -- Product Appeal
D = Coupon -- Sizes Good for

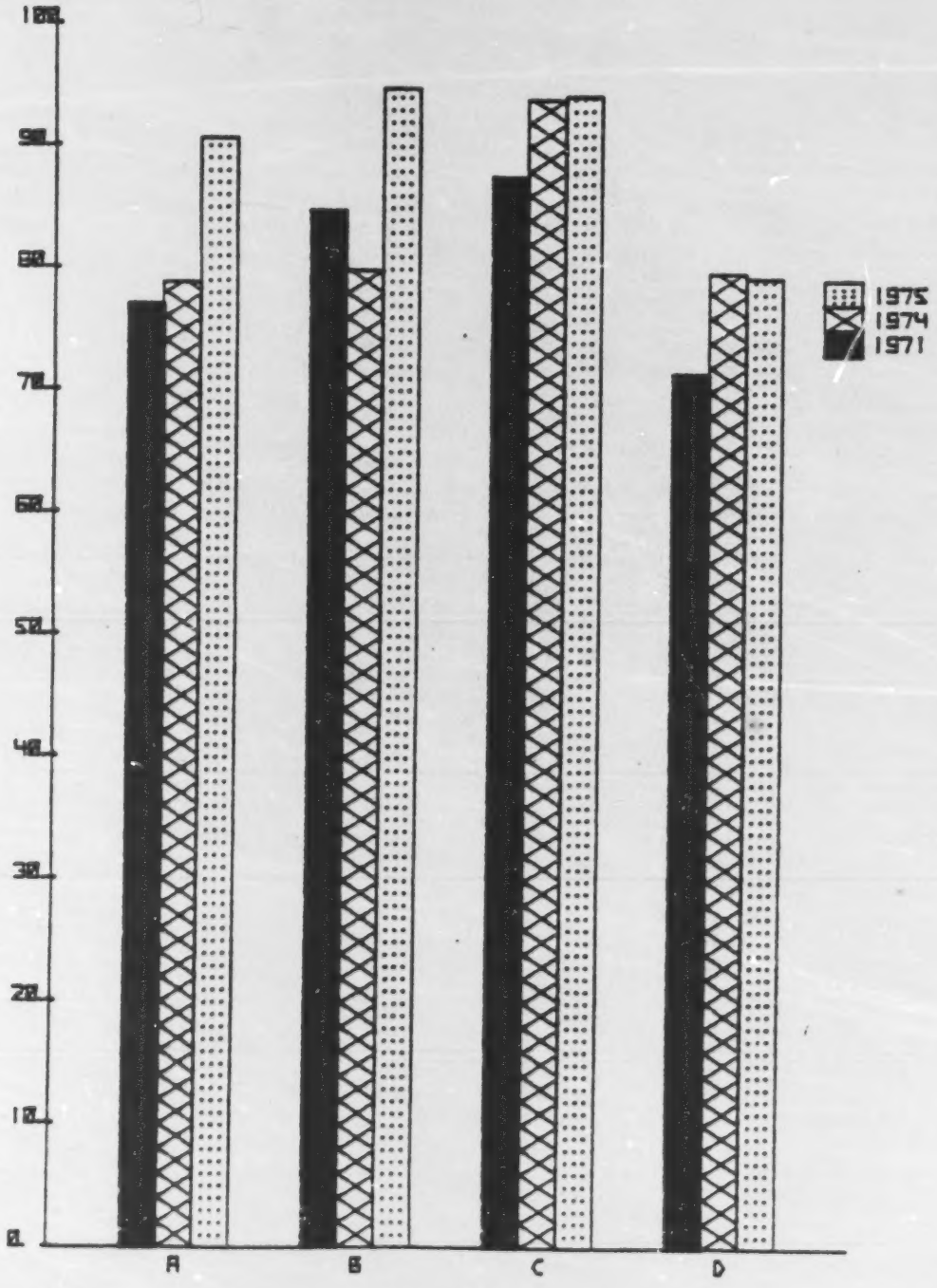

EXHIBIT 5-6. Raw P-Values for the Unique Exercises on Which 17-Year-Old Student Performance Improved Markedly

VARIABLE Group	Help Wanted Ad How Apply?			Help Wanted Ad Equal Op. Emp.?			Coupon Product Appeals to			Coupon Size(s) Good for		
	1971	1974	1975	1971	1974	1975	1971	1974	1975	1971	1974	1975
National	77.0	78.8	90.6	84.7	79.8	94.7	87.5	93.8	94.1	71.4	79.6	79.2
REGION												
Southeast	66.3	69.3	86.4	79.8	66.1	91.4	86.6	95.2	93.1	59.9	69.3	73.7
West	77.6	72.4	93.7	81.6	71.3	97.0	85.8	94.2	95.7	63.3	75.5	73.6
Central	79.6	84.1	90.8	87.2	87.6	94.4	88.7	94.4	92.9	82.2	85.5	84.0
Northeast	82.6	84.5	91.0	88.8	87.1	95.7	88.2	91.6	94.9	74.8	85.0	83.2
SEX												
Male	75.6	78.1	91.0	82.6	78.5	93.4	84.9	92.9	93.7	76.3	76.5	74.9
Female	78.5	79.5	90.3	86.8	81.1	95.8	79.1	79.1	78.4	75.3	82.3	82.9
RACE												
Black	58.5	51.7	80.7	66.2	57.7	87.9	81.6	87.6	90.7	52.7	55.4	58.0
White	79.6	82.2	92.6	87.7	82.5	96.0	88.3	94.8	94.4	74.2	84.9	82.8
PARENTAL EDUCATION												
No High School	65.4	64.8	80.6	73.0	64.0	88.2	85.9	91.5	92.9	57.4	67.7	69.0
Some High School	68.0	67.8	80.3	78.3	68.7	87.8	87.3	90.1	92.0	67.2	70.6	66.6
Grad. High School	75.7	78.6	91.3	83.8	79.2	95.9	87.7	94.1	93.8	73.6	78.9	80.6
Post High School	85.1	84.3	95.4	91.8	85.5	97.3	88.5	95.7	95.3	74.6	85.7	83.9
SIZE/TYPE OF COMM.												
Low Metro	71.9	74.1	83.0	75.9	79.8	89.7	87.1	88.8	89.2	64.8	62.2	66.4
Extreme Rural	65.9	62.0	89.8	77.6	66.2	89.8	86.7	95.6	92.6	70.5	81.3	71.0
Small Place	76.6	80.5	89.0	84.4	75.7	94.5	87.7	93.8	95.8	68.1	81.8	78.6
Medium City	78.5	80.7	89.0	85.4	81.7	94.8	84.3	94.8	93.8	74.3	80.1	80.9
Main Big City	71.3	75.7	93.3	81.0	83.5	95.5	85.9	92.8	92.7	73.5	81.0	84.1
Urban Fringe	78.2	85.3	96.4	88.0	88.5	97.7	91.0	94.8	93.9	74.3	81.6	82.2
High Metro	89.7	84.4	95.4	96.6	84.7	98.6	89.7	96.6	94.4	76.0	88.7	86.3

*Significant: The probability is no greater than 0.050 that the change is due to random error.

APPENDIX A

DEFINITIONS OF GROUPS FOR WHOM RESULTS ARE REPORTED FOR THE MINI-ASSESSMENT OF FUNCTIONAL LITERACY

For the Mini-Assessment of Functional Literacy (MAFL), the National Assessment of Educational Progress (NAEP) reports results for only those 17-year-olds enrolled in school at the time the relevant assessment was conducted. The 17-year-olds appropos the MAFL are defined as:

1. (1971 assessment) all persons attending public or private schools during March and April, 1971, and born between October 1, 1953 and September 30, 1954.

2. (1974 assessment) all persons attending public or private schools during March and April, 1974, and born between October 1, 1956 and September 30, 1957.

3. (1975 assessment) all persons attending public or private schools during March and April, 1975, and born between October 1, 1957 and September 30, 1958.

Excluded from these assessments were persons who were non-English speaking; institutionalized; or physically, emotionally, or mentally handicapped in such a way that they could not respond to the exercises as administered.

National Assessment also reports results for these defined 17-year-olds by four geographic regions of the country--Southeast, West, Central, and Northeast; sex--male and female; race[1]--black and white; four levels of parental education--no high school, some high school, graduated from high school, and post high school; three "extreme" types of community--high metro, low metro, and extreme rural; and four "residual"[2] sizes of community--small place, medium city, main big city, and urban fringe. These reporting categories are defined in the remainder of this appendix.

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[1]NAEP does not have a large enough representation of persons of other races or ethnic backgrounds to be able to report reliable results from them.
[2]The sizes of community comprise the residual after the extreme types of community have been extracted from the whole.

Regions of the Country

The National Assessment of Educational Progress reports results for the four geographic regions defined by the Office of Business Economics, Department of Commerce[3] as shown below:

Southeast	West	Central	Northeast
Alabama	Alaska	Illinois	Connecticut
Arkansas	Arizona	Indiana	Delaware
Florida	California	Iowa	District of Columbia
Georgia	Colorado	Kansas	Maine
Kentucky	Hawaii	Michigan	Maryland
Louisiana	Idaho	Minnesota	Massachusetts
Mississippi	Montana	Missouri	New Hampshire
North Carolina	Nevada	Nebraska	New Jersey
South Carolina	New Mexico	North Dakota	New York
Tennessee	Oklahoma	Ohio	Pennsylvania
Virginia	Oregon	South Dakota	Rhode Island
West Virginia	Texas	Wisconsin	Vermont
	Utah		
	Washington		
	Wyoming		

[3]The Office of Business Economics uses different names than NAEP for three of the regions.

NAEP	OBE
Southeast	Southeast
West	West and Northwest
Central	Great Lakes and Plains
Northeast	North Atlantic

Sex

National Assessment reports results for males and females on the basis of visual identification by the Exercise Administrator.

Race

National Assessment reports results for blacks and whites on the basis of visual identification by the Exercise Administrator. Respondents not classified as black or white were classifed into several "other" ethnic groups including Puerto Rican, Mexican-American, Oriental, and American Indian. The numbers of persons classified in these "other" categories are too small to provide reliable results for reporting.

Parental Education

National Assessment reports results of four levels of parental education. Parental education refers to the highest level attained by at least one parent as reported by the respondent. For the purpose of the following definitions, "high school" refers to grades 9 through 12.

No high school. Neither parent has any formal education beyond the eighth grade.

Some high school. At least one parent has some formal education beyond the eighth grade, but neither parent has graduated from high school.

Graduated from high school. At least one parent has graduated from high school, but neither parent has any formal education beyond high school.

Post high school. At least one parent has some formal education beyond high school.

National Assessment reports results for seven size-and-type of community (STOC) categories: three "extreme" types of community (TOC), each composed of approximately 10 percent of the respondents and four "residual" sizes of community (SOC*) composed of the remaining 70 percent of the respondents. Before the STOC categories can be defined, however, it is necessary to define four "complete" sizes of the community in which the school they attend is located. Both SOC and STOC definitions refer to entire schools, i.e., all respondents attending a given school are assigned to the same SOC category and to the same STOC category.

Size of Community (SOC)

All schools in the sample were assigned to one of the four SOC classifications.

SOC-1: Big city. A school located within the city limits of an urbanized area central city having a population of at least 200,000 OR within the city limits of one of two or more conglomerate urbanized area central cities with a combined population of at least 200,000.

SOC-2: Urban fringe. A school located outside the city limits of an urbanized area central city or conglomerate (SOC-1) but within the urbanized area of such a city or cities.

SOC-3: Medium city. A school within the city limits of a city having a population of from 25,000 to 200,000 but not within the urbanized area of a big city (SOC-1).

SOC-4: Small place. A school in the open country or in a community having a population less than 25,000 and not in the urbanized area of a big city (SOC-1).

The SOC classification of each school was determined by the following procedure.

1. The names, addresses, zip codes and school districts of all the sample schools were listed;

2. Each school was identified by the county in which it was located;

3. On the basis of census information, the counties represented were classified into three groups:

   (a) Counties wholly or partly within the urbanized areas of cities or conglomerates of cities having populations of at least 200,000;

   (b) Counties not wholly or partly within such urbanized areas having populations less than 25,000;

   (c) All other counties;

4. All schools in group (b) counties were classifed under SOC-4, small place;

5. Using school districts, addresses, zip codes, census urbanized-data maps, zip code maps and zip code directories, locations of schools in group (a) counties were determined with respect to the central cities and their urbanized area;

6. Schools located within the central cities were classified under SOC-1, big city;

7. Schools located outside the central cities but within the urbanized areas were classified under SOC-2, urban fringe:

8. For all the remaining schools in group (a) counties and all of the schools in group (c) counties, the populations of their post office address cities was obtained from census reports;

9. Schools with addresses in cities having populations less than 25,000 were classified under SOC-4, small place;

10. For schools with addresses in cities having populations over 25,000, school districts, street addresses, zip codes, street maps, and zip code maps were used to identify schools lying outside the limits of those cities; schools so identified were classified under SOC-4, small place;

11. The schools of such cities located within the city limits were classified under SOC-3, medium city.

Type of Community (TOC)

Both a school's SOC classification and information provided by the school's principal on a questionnaire determined the school's TOC classification. The questionnaire asked each principal to estimate the percentages of parents in each of six occupational categories:

CODE	DESCRIPTION
A:	Professional or managerial personnel
B:	Sales, clerical, technical, or skilled workers
C:	Factory or other blue-collar workers
D:	Farm workers
E:	Not regularly employed
F:	On welfare

Each school was assigned an index for each of the three extreme TOCs. In each of the TOC indices, each letter represents the percentage of parents estimated to be in the occupational category assigned that code.

TOC-1: Extreme rural. The extreme-rural index is (D-C-2A) so as to provide the highest values for schools with high percentages of students having parents who are farm workers and low percentages of students having parents who are factory or blue-collar workers and professional or managerial personnel. Schools were rank-ordered on this index, and those ranking highest were provisionally included in the extreme-rural TOC until 10 percent of the total number of respondents were accounted for. To remain in this category, a school must be located in a small place (SOC-4), have a non-zero number of farm worker parents, have some or all of its students coming from places having less than 2,500 population and no students coming from places having greater than 10,000 population. Schools below the 10 percent TOC index cutoff and meeting these latter conditions were added to the extreme-rural TOC

to replace those deleted for failure to meet the conditions, thus maintaining the 10 percent quota.

TOC-2: Low metro. The low-metro index is (E+F-A) so as to provide the highest values for schools with high percentages of students having parents not regularly employed or on welfare, and a low percentage of students having parents in professional and managerial occupations. Schools were rank-ordered on this index, and those ranking highest were provisionally included in the low-metro TOC until 10 percent of the total number of respondents were accounted for. To remain in this category, however, a school must also be located in the urbanized area of a big city or conglomerate of cities (SOC-1 or SOC-2). Schools below the 10 percent cutoff and meeting this last criterion were added to replace schools deleted for failure to meet the criterion so as to meet the 10 percent quota.

TOC-3: High metro. The high-metro index is (A-{C+D+E+F}) so as to provide the highest values for schools with high percentages of students having parents in professional and managerial occupations and low percentages of students having parents on welfare, not regularly employed, working in blue-collar jobs, and working on farms. Schools were rank-ordered on this index, and those ranking highest were provisionally included in the high-metro TOC until 10 percent of the total number of respondents were accounted for. To remain in this category, however, a school must also be located in the urbanized area of a big city or conglomerate of cities (SOC-1 or SOC-2). Schools below the 10 per cent cutoff and meeting this last criterion were added to replace schools deleted for failure to meet the criterion so as to meet the 10 percent quota.

TOC-4: Other. All schools not classified as TOC-1, TOC-2, or TOC-3.

Size and Type of Community (STOC)

The seven STOC categories are defined to represent simple combinations of the SOC and TOC categories defined above.

STOC-1: Extreme rural. This STOC is identical with TOC-1.

STOC-2. Low metro. This STOC is identical with TOC-2.

STOC-3: High metro. This STOC is identical with TOC-3.

STOC-4: Main big city. Any school classified in both the big city (SOC-1) and other (TOC-4) categories.

STOC-5: Urban fringe. Any school classified in both the urban fringe (SOC-2) and other (TOC-4) categories.

STOC-6: Medium city. Any school classified in both medium cities (SOC-3) and other (TOC-4) categories.

STOC-7: Small place. Any school classified in both the small place (SOC-4) and other (TOC-4) categories.

APPENDIX B

DESCRIPTIONS OF THE EXERCISES USED IN THE MINI-ASSESSMENT OF FUNCTIONAL LITERACY

Because the exercises used in the Mini-Assessment of Functional Literacy are not in the public domain, we cannot reproduce them here. In lieu, we present a brief description of each exercise stem and the question(s) asked about it.

- List of words beginning with "Fl..."

  Which of these words comes first in a dictionary?

- Picture of four doors that might be in a school labeled "Principal," "Nurse," "Cafeteria," "Library."

  Door where you might go for lunch?

- Replica of automobile insurance policy statement.

  A. What is the maximum amount for which this policy covers medical bills?

  B. What is the maximum amount this policy would pay in case you injured another person in an automobile accident?

- List of five pairs of last names beginning with "J..."

  You want to call Mr. Jones on the telephone. You will find his number between which names?

- Facsimile of four common traffic signs.

  Which sign shows where you should ride your bicycle?

- Facsimile of detail from a road map.

  A. By car, is Northtown closer to Rice Lake than to Hope?

  B. Can you drive all the way from Northtown to Falls City on Highway 71?

  C. Is Hope the town closest to Centerville?

  D. Is Centerville farther west than Hope?

  E. Does Highway 20 run on the south side of Rice River?

- Facsimile of a check.

  A. Who is to receive the money?

  B. What is the number of the check?

  C. For what reason would the bank probably NOT cash the check?

- Identify meaning of nonsense word as used in a passage.

- Passage describing scarlet fever.

  Identify information given in first sentence.

- Facsimile of a book-club membership application.

  A. What shipping costs if you live in Canada?

  B. What money should you send with the order for books?

  C. How many additional books must you buy?

- Picture of door with sign hanging <u>on</u> it.

  Identify this fact as opposed to the signs hanging by, over, or near the door.

- Identify which of four sentences does not belong with the other three.

- Replica of a report card.

  Identify the reporting period covered.

- Replica of "Help Wanted" advertisement.

  A. Identify starting and quitting times.

  B. Identify minimum age.

  C. Identify salary.

- Picture of mushroom with parts named.

  Identify the parts named.

- Replica of map taken from telephone directory showing service areas with prefixes and listing of which areas require toll charges.

  A. Seven service areas are given. Identify which ones require a toll charge and which ones do not.

  B. If you placed a call to 533-0221, what area would you be calling?

- Identify sentence that tells the meaning of "I certainly won't miss that movie."

- Replica of long distance telephone bill.

  A. Where was call made on February 14 from?

  B. Where was call made on February 14 to?

  C. What did call made on February 14 cost?

- Identify the word that best describes the tone of a sentence.

- Facsimile of excerpt from 1040 income tax form instructions.

  Identify maximum standard deduction for married people filing separately.

- Replica of an ad for preventing forest fires.

  A. What is the name of the bear pictured?

  B. What is the purpose of the ad?

  C. What specific instruction does ad give to help prevent forest fires?

- Replica of "Help wanted" advertisement.

  A. What company is offering the job?

  B. What kind of job is being offered?

  C. What are two qualifications for the job?

  D. What is the top salary after six weeks training?

  E. How should you apply for the job if you live locally?

F. What do words "Equal Opportunity Employer" mean?

- Picture of four doors that might be in a school labeled "Principal," "Nurse," "Cafeteria," "Library."

  Door where you would send a visitor who wants to see the person in charge of the school.

- Recognize that a short passage tells how a man looks.

- Replica of report card.

  Identify subject area in which the student is improving his work.

- Listing of comparable sizes for women's clothing in U.S.A., England, and Europe.

  A. Size of shoes a woman would ask for in Europe if she wears 8 in U.S.A.

  B. If she wears a 38 sweater in the U.S.A., what size would she buy in Europe?

  C. If her wardrobe contains the following sizes: 34 blouse, 12 dress, 8 shoes, what sizes would she buy in Europe?

- Passage describing magic trick.

  A. Identify the first thing to do to perform the trick.

  B. What do you do while standing in a dimly lit corner of the room?

- Picture of spines of a set of encyclopedias.

  Give number of volume where you would find out about George Washington.

- Passage giving reasons for preferring dog over cat.

  Identify the number of reasons given.

- Replica of traffic ticket.

A. Must a person appear at the Traffic Violation Bureau to plead "Not Guilty" to a violation?

B. What would fine be for parking two hours in a one-hour zone?

C. If a person found this ticket on his car Thursday, June 4, he would have until what date to pay his fine?

- Sentence distinguishing use of "ever" and "never."

- Facsimile of billboard sign-horsepower.

  Identify where you would see this sign.

- Passage describing man's trip to Mt. Everest.

  Identify reason why man went to Mt. Everest.

- Listing of telephone area codes and long distance information.

  A. Identify number to call to obtain number in New York City.

  B. Identify number to call in Syracuse, N.Y.

- Facsimile of label from bug spray can giving directions for use and list of bugs it kills.

  A. Identify which bug probably would not be killed by spray.

  B. How far from surface should you hold the can?

- Facsimile of store coupon.

  A. Identify "audience" the product will appeal to.

  B. Identify size(s) of product.

  C. Recognize terminal date for coupon use.

  D. Identify amount dealer will be paid for coupon.

- Replica of page from telephone directory giving information about long distance calls.

A. Recognize which rate would apply to a station-to-station call made at 5:00 p.m. on a non-holiday Saturday.

B. Recognize how a station-to-station call differs from a person-to-person call.

- Quotation of person commenting on TV programs.

  Identify the type of program the speaker prefers.

- Facsimile of four common traffic signs.

  Identify which sign (for pedestrians) tells you what to do if you are walking.

- List of five pairs of guide words from dictionary that begin with "O..."

  Identify the pair between which you would find the word "optimal."

- Facsimile of four common traffic signs.

  Identify sign to look for if you want to catch a bus.

- Facsimile of portion of 1040 income tax form instructions.

  A. Identify the marital status for tax purposes of a couple divorced during the tax year.

  B. Identify whether the couple could file a joint return the following year.

  C. Identify whether they could have filed a joint return for the year in which they were married.

- Passage.

  Identify set of words that tell what the passage was mainly about.

- Facsimile of contents listings from labels of two brands of dog food.

  Identify brand that contains more protein.

APPENDIX C

CLASSIFICATION OF THE EXERCISES USED IN THE MINI-ASSESSMENT OF FUNCTIONAL LITERACY

The MAFL Exercise Formats

The five MAFL exercise formats and the number of exercise parts classified under each are:

I.	Passages	38
IIA.	Graphic materials--drawings, pictures, signs, coupons	13
IIB.	Graphic materials--charts, maps, graphs	11
IIC.	Graphic materials--forms	10
III.	Reference materials	14
	Total	86

The format classification is based upon the nature of the reading material itself. If an exercise has several aspects, we classified it according to the aspect eliciting the required response. Consider, for example, a two-part exercise whose stimulus is an advertisement containing both a passage and a picture. If the required response to one part was elicited by the passage, that part was classified "passage." Likewise, if the response to the other part was elicited by the picture, that part was classified "graphic materials--drawings, pictures, signs, coupons." Following are the definitions of the MAFL exercise formats.

Format I: Passages

The reading materials classified as passages are line-by-line narrative such as stories, poems, or newspaper and magazine articles. While other reading material formats are common, most persons spend more time reading line-by-line narrative than all other formats combined. This is reflected in the fact that 38 of the 86 MAFL exercise parts have been classified as passages.

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The reading materials classified under formats IIA, IIB, and IIC are similar in that they are all graphic materials. In the general sense, graphic materials transmit information through symbols other than words. While words frequently appear in graphic materials, they may not carry the greatest burden of communication. In any event, words appearing in graphic materials are supported by the nonverbal aspects. Because of the diversity of graphic

materials, the NAEP/MAFL staff and the panel of reading specialists[1] chose to create three graphic-material format categories.

Format IIA: Graphic Materials-- Drawings, Pictures, Signs, Coupons

The reading materials classified under this format are drawings or other simple pictures (two exercise parts), various signs including signs on doors and traffic signs (seven exercise parts), and a coupon (four exercise parts). Even though there are several types of graphic materials in this format, we believe that they are similar enough to be considered together.

Format IIB: Graphic Materials-- Charts, Maps, Graphs

The reading materials classified under this format are several charts or listings (six exercise parts) and a map (five exercise parts). No graphs were given in the MAFL. The materials of Format IIB could, in one sense, be included in Format III, reference materials, since a person consults these materials in quest of specific information--a process that is a study skill.

Format IIC: Graphic Materials--Forms

The reading materials classified under this format are an automobile insurance policy statement (two exercise parts), a check (three exercise parts), a report card (two exercise parts), and a long distance telephone bill (three exercise parts). In general, materials included in this format are organized in specific ways to enhance locating the information they contain. They could also, in one sense, be included in Format II, reference materials, since organization of materials is one of the properties of reference materials.

Format III: Reference Materials

Reference materials are unique in that they are organized to facilitate the retrieval of specific types of information. By the same token, a person is usually seeking some specific kind of information when he "reads" or uses a reference work. The process of gleaning information from reference is regarded as a study skill. The reading materials classified under this format all require the ability to use various reference materials: from a telephone book, whether or not there is a toll charge when making a call from one area to another in and around a large city (seven exercise parts); using knowledge of the alphabetical organization of directories (two exercise parts), encyclopedias (one exercise part), and telephone books (one exercise part); and from a telephone book, obtaining information about long distance rates (one exercise part), prefix

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[1]See the Preface, note 2 for names of the reading specialists.

area (one exercise part), and station-to-station versus person-to-person calls. Another aspect of the reference material format, although it is not represented in the MAFL, is knowledge of the appropriate reference source where a given kind of information can be found.

The Behaviors (Skills) Elicited by the MAFL Exercises

The five reading behaviors or skills elicited by the MAFL exercises and the number of exercise parts classified under each are:

1.	Understand word meanings	12
2.	Glean significant facts	47
3.	Comprehend main ideas and organization	8
4.	Draw inferences	16
5.	Read Critically	3
	Total	86

The behavior classification is based upon the response behavior (presumed to represent a skill) elicited by each exercise part. Consider, for example, a three-part exercise. One part may simply require the student to identify a stated fact; another may require the student to relate several facts to form the central thought or main idea; and the third may ask the student to draw an inference. Following are the definitions of the response behaviors or skills elicited by the MAFL exercises.

Behavior 1: Understand Word Meanings

Before a person can understand word meanings and the relationship of words to each other to form meaningful whole, he must have at least a reasonable mastery of the fundamental skills usually taught in the primary grades. This implies that he has a working knowledge of the language and is able to translate visible symbols into sound (vocal or subvocal) by sight identification or some technique of word analysis. After the person has produced the sound that makes up the word, can he understand it? It is at this point that the skills assessed by this reading behavior become important. In all the MAFL exercises that elicit the response behavior, understand word meanings, the words occur in some context: signs on doors (three exercise parts), in advertisements (four exercise parts), and other passages (two exercise parts). Sometimes the context can help the reader to determine the meaning of a word if he does not already understand it.

Behavior 2: Glean Significant Facts

This behavior is simply the reader's identifying the specific facts asked for in the exercise--without regard to format. This behavior is contingent upon the student's understanding the meanings of the words in the materials.

Behavior 3: Comprehend Main Ideas and Organization

A reader who can only glean significant facts from what he reads loses much of the author's intent. The ultimate goals in reading are that the reader understand exactly what the author has said and the he be able to respond meaningfully to the author's message. These goals begin to approach fulfillment when the reader can identify the main idea or topic that the factual materials support and when the reader can identify the author's mode of structuring the factual materials to convey his message.

While comprehending main ideas and organization generally implies a higher order reading skill, the MAFL exercises that elicit this response behavior require a very low level of the skill. Four of the eight exercise parts under this rubric merely require knowledge of the alphabetical organization of dictionaries, encyclopedias, and telephone books. Two asked for the main idea of a very short passage (two-four lines). One asked which one of four sentences did not belong with the others, and one asked about the organization of facts in a passage.

Behavior 4: Draw Inferences

The reader who can identify the main idea and organizational mode of reading material has taken a large step toward being able to understand exactly what the author has said and responding meaningfully to the author's message. The next step toward attaining these ultimate goals of reading is being able to draw inferences from what the author has said. This skill involves going beyond the information given by the author and drawing conclusions based on that information. A reader is likely to draw incorrect inferences if he has not mastered the skill of identifying the main idea and organization of a work since he cannot tell what facts (conclusions) should follow from the facts given.

Like comprehending main ideas and organization, drawing inferences generally implies a higher order reading skill. The 16 MAFL exercise parts that elicit this response behavior, however, require only a low degree of inference, that is, the distance from the given facts to the required conclusion is small.

Behavior 5: Read Critically

Once one is able to relate the significant facts in a piece of reading material to identify the author's main ideas and organizational mode and is able to draw inferences from the author's message, he has become involved in a complex reader-author interation. He has moved a long way toward the ultimate goals of

reading: understanding exactly what the author has said and responding meaningfully to the author's message. The final step toward achieving these goals is embodied in reading critically. A reader must be able to use his own thoughts and experiences to analyze, criticize, evaluate, and then accept, modify, or reject what the author has said.

In reading critically, a reader must understand the various literary devices used by the author to enhance his message and how effective these devices are. He must recognize how the mood and tone help to carry the author's message. He must be able to determine whether an author is stating a fact or expressing an opinion; and he must recognize the author's purpose in writing the passage. Reading is not an all or nothing activity. Rather it is a series of complex behaviors toward a variety of materials. At each step the reader becomes ever more deeply involved in a reader-author relationship and a fulfilling reading experience.

The three MAFL exercises representing this behavior, again, require only a marginal degree of critical reading ability.

Format by Behavior

Thus far we have considered format and behavior separately. When considered together there are 25 potential format/behavior subcategories. Eleven of these have no representation in the MAFL exercises and eight others are represented by five or fewer exercise parts. Only six subcategories are represented by more than five exercise parts. Exhibit C-1 shows the number of exercise parts representing each subcategory.

EXHIBIT C-1. Cross-Categorization of the MAFL Exercises

	I. Passages	IIA. *GM-drawings, pictures, signs, etc.	IIB. *GM-charts, maps, graphs	IIC. *GM-forms	III. Reference Materials
1. Understand word meanings	6	6	0	0	0
2. Glean significant facts	18	3	11	10	5
3. Understand main ideas	4	0	0	0	4
4. Draw inferences	8	3	0	0	5
5. Read critically	2	1	0	0	0

60

* GM-graphic materials